UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

ESTABLISHMENT RECORD

FOR THE

CONE PEAK GRADIENT RESEARCH NATURAL AREA

MONTEREY COUNTY, CALIFORNIA

DESIGNATION ORDER

By virtue of the authority vested in me by the Secretary of Agriculture under regulations 7 CFR 260(a) and 36 CFR 251.23, I hereby designate as the Cone Peak Gradient Research Natural Area the lands described in the following establishment record prepared by Mark Borchert, dated May 28, 1987. These lands shall hereafter be administered as a Research Natural Area subject to legislation and regulations governing management of the Ventana Wilderness.

for F. Dale Robertson, Chief

7/16/87
Date

DECISION NOTICE

AND

FINDING OF NO SIGNIFICANT IMPACT

CONE PEAK GRADIENT RESEARCH NATURAL AREA

Monterey County, California

Los Padres National Forest

Pacific Southwest Region

Establishment of a Research Natural Area in the Cone Peak and Limekiln Creek portions of Ventana Wilderness was recommended by the Big Sur Coastal Land Management Plan, which is a USFS decision-making document meeting NEPA requirements and approved on 24 July 1978.

Based on information presented in environmental impact statement (EIS) for the Big Sur Coastal Planning Unit, I have decided to establish the Cone Peak Gradient Research Natural Area of approximately 2787 acres (1128 hectares) to preserve a complex mosaic of twelve plant communities compressed into a relatively small area. This decision responds to Region 5/Pacific Southwest Research Natural Area (RNA) Committee concerns that target vegetation types are adequately represented, while minimizing conflicts with other resources and uses.

The area is distinguished primarily for its high ecological diversity and compressed juxtaposition of species and communities along an elevational/climatic gradient from sea level to the summit of Cone Peak. Of the twelve plant communities identified within the area, mixed evergreen forest, canyon live oak woodland, coast live oak woodland, coast redwood, and chaparral are of sufficient magnitude to contribute to cover type representation in the RNA system. Also represented within the area are mixed conifer stands containing the rare endemic Santa Lucia fir and the largest disjunct stand of sugar pines outside of the Sierra Nevada Mountains.

The size of the area is sufficient to ensure unmodified conditions throughout the area. Three unpaved roads provide access to or near the boundary by two-wheel drive vehicles. Three designated foot trails allow access within the area. Low levels of grazing and recreational uses are the only activities occurring in the area which might conflict with Research Natural Area values.

Neither activity is viewed as significant, and both will be closely monitored and controlled. The land is designated Wilderness; it was included as part of the Ventana Wilderness by the Endangered American Wilderness Act of 1978. The area is manageable as a Research Natural Area because its wilderness designation precludes the impact of vehicular access into the area. Present

and projected nonconforming use of the area is limited. Costs of administration will be low.

This decision is subject to administrative appeal pursuant to 36 CFR 211.19. A Notice of Appeal must be filed within 45 days of the date of this Decision Notice.

F. Dale Robertson, Chief
for Chief

7/16/87
Date

TITLE PAGE

Establishment Record for the Cone Peak Gradient Research Natural Area within Los Padres National Forest, Monterey, California

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT

Cone Peak Gradient Research Natural Area

Los Padres National Forest

Monterey County, California

The undersigned certify that all applicable land management planning and environmental analysis requirements have been met in arriving at this recommendation.

Prepared by Mark Borchert Date May 28, 1987
Mark Borchert, Ecologist, Los Padres National Forest

Recommended by David Harmen Date 6/3/87
David Harmen, District Ranger, Monterey Ranger District

Recommended by Arthur Carroll Date 6/8/87
Arthur J. Carroll, Forest Supervisor, Los Padres National Forest

Recommended by _____ Date _____
Zane G. Smith, Regional Forester, Region Five

Recommended by Enoch F. Bell Date 6/15/87
for Roger Bay, Station Director, Pacific Southwest Forest and Range Experiment Station

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A. INTRODUCTION

The Cone Peak Gradient Research Natural Area (RNA) lies within the Monterey Ranger District, Los Padres National Forest. It was included as a part of the designated Ventana Wilderness by the Endangered American Wilderness Act of 1978 1/. It also lies within the boundaries of the California Coast Ranges Biosphere Reserve designated by the International Coordinating Committee of UNESCO's Man and the Biosphere Program in April 1983. The area contained in the RNA was recognized for its botanical values in the 1977-78 Big Sur Coastal Planning Unit FES 2/ and Land Management Plan 3/ and was recommended in those documents for establishment as an RNA. Use of the area for RNA purposes is compatible with both the Big Sur Coastal Planning Unit Management Plan and the Interim Wilderness Management Plan 4/. Full compliance with the National Environmental Policy Act of 1969 was achieved through these earlier documents.

1. Land Management Planning

The management prescription for RNAs (Appendix 1) in the Draft Land and Resources Management Plan for Los Padres National Forest 5/ presents the management emphasis and direction for all RNAs on the Forest, including the Cone Peak Gradient RNA. This prescription reiterates direction presented in this section as well as presents additional direction on topics such as the use of prescribed fire.

1/ Endangered American Wilderness Act of 1978, Public Law 95-237, Feb. 24, 1978.

2/ Final Environmental Statement, Big Sur Coastal Planning Unit, filed with the Council of Environmental Quality on November 8, 1977 (USDA-FS-R5-FES) (ADM 77-02). On file at the Supervisors Office, Los Padres National Forest, Goleta, CA.

3/ Big Sur Coastal Land Management Plan, USDA, Forest Service, Los Padres National Forest, July 24, 1978. On file at the Supervisors Office, Los Padres National Forest, Goleta, CA.

4/ Interim Wilderness Management Plan, USDA, Forest Service, Los Padres National Forest, April 14, 1982. On file at the Supervisors Office, Los Padres Forest, Goleta, CA.

5/ Draft Land and Resource Management Plan, Los Padres National Forest, 1986. USDA, Forest Service Pacific Southwest Region. On file at the Supervisors Office, Los Padres National Forest, Goleta, CA.

B. JUSTIFICATION FOR ITS ESTABLISHMENT

The Cone Peak Gradient RNA contains a variety of vegetation types ranging from maritime to interior-montane, a number of which contribute toward completion of the RNA system for the Pacific Southwest Region. It shares a boundary with the Landels-Hill Big Creek Reserve, a component of the University of California Natural Land and Water Reserves System and is actively used by the University for research. The Cone Peak Gradient RNA also is being considered for inclusion in the National Registry of Natural Landmarks.

The primary value of the RNA stems from its uniqueness. It is geographically located at the conjunction of California's northern and southern coastal floras and contains an elevational gradient from near sea level to 5,154 feet (1,571 meters) within a horizontal distance of only 3.26 miles (5.25 kilometers). It is the only known location of the co-occurrence of these combined physiographic features on federal lands on the West Coast. Although not a part of the RNA itself, the uniqueness of the general area is further enhanced by the narrowness of the continental shelf at this location, which is only about ca 22 miles (35 kilometers) wide before it plunges to a depth of some 15,000 feet (4570 meters) below sea level in the northern Middle American Trench. In conjunction with the University of California Reserve, research opportunities are available along a continuous transect from the top of Cone Peak to below sea level.

Because of these special conditions, the RNA contains an unusually large number of species and communities, many of which are at or near the extreme limits of their ranges, as well as many disjunct populations at higher elevations. The result is a highly varied ecological structure with diverse communities and species compressed into a single small area.

C. PRINCIPAL DISTINGUISHING FEATURES

The Cone Peak Gradient RNA is primarily distinguished for its rich ecological diversity and compressed juxtaposition of species and communities along an elevational/climatic gradient from sea level to the summit of Cone Peak (Figures 1 and 2). Twelve plant communities have been identified within the area; of these, canyon live oak woodland (SAF-249) 1/, mixed evergreen forest (K-25) 2/, California coast live oak woodland (SAF-255), redwood (SAF-232), and chaparral (K-29) are of sufficient magnitude to contribute to cover type representation in the RNA system (Appendix 2). The redwood community is at the extreme southern limit of the range. The RNA also contains a large endemic population of bristlecone fir (Abies bracteata D. Don ex Poiteau), known locally as Santa Lucia Fir, a rare conifer of the Santa Lucia Mountains. The Sur-Nacimiento thrust fault passes across the lower and western portion of the area. The Limekiln Creek drainage is described as charnockitic terrain, thought to be of Pre-Cambrian in age. If so, these would be the only rocks of that age between the Transverse Ranges and the Northern Cascades. Apparently, these are the only charnockitic rocks described west of the Continental Divide in North America. The RNA has a long history of botanical collections and is well known to the scientific community.

1/ Society of American Foresters (F. H. Eyre, Ed.). 1980. Forest Cover Types of the United States and Canada.

2/ Kuchler, A. W. 1966. Potential Natural Vegetation. U.S. Department of Interior Geological Survey, Sheet No. 90, Washington, D.C.

D. LOCATION

The center of the RNA is located at latitude 36° 02' 20" North and longitude 121° 30' 45" West (Maps 1 and 2). Lands within the RNA are federal lands administered by the Monterey Ranger District, Los Padres National Forest. Lands bordering the north, east, and south sides of the RNA are national forest system lands, while those to the west are privately owned, and are outside the boundary of Los Padres National Forest. The RNA is located approximately 50 airline miles (80.5 kilometers) south-southeast of Monterey, California.

A. Description of the Area

1. The RNA falls all or partly within T. 21 S., R. 4 E., MDB&M (Mt. Diablo Base and Meridian), Sections 33, 34, and 35; and T. 22 S., R. 4 E., MDB&M, Sections 2, 3, 10, 11, 14, and 15.

2. Boundaries of the RNA follow, in various segments, legal subdivision (Government Land Office) lines, ridge lines, and streams. Following designation, the boundaries will be signed as needed.

3. Following is a narrative description of the boundary. Reference the topographic map (Map 3) which is a part of this report.

Along the Wilderness boundary (dashed line, Map 3) that excludes the Cone Peak lookout beginning at the summit of Cone Peak elevation 5155 feet (1571 meters) in T. 22 S., R. 4 E., MDB&M in the NW1/4, Sec. 2, the Cone Peak Gradient Research Natural Area boundary runs in a southerly and southwesterly direction for approximately 2.76 miles (4.44 kilometers) along the ridge dividing Limekiln Creek and Hare Canyon to the intersection of said ridge with privately-owned lands in T. 22 S., R. 4 E., MDB&M the SE1/4, Sec. 15; thence due north along this property line for approximately 0.49 miles (0.79 kilometers); thence due west along this property line for approximately 0.68 miles (1.09 kilometers) to its intersection with the boundary of the Los Padres National Forest on the section line common to T. 22 S., R. 4 E., MDB&M, Sec. 15 and 16,; thence east 0.25 miles (0.40 kilometers) along this property line; thence north 1 mile (1.62 kilometers) along this property line; thence west 0.25 miles (0.40 kilometers) along this property line to T. 22 S., R. 4 E., Sec. 3 and 4, and 9 and 10, thence north 1.20 miles (2.48 kilometers) to T. 21 S., R. 4 E., MDB&M, Sec. 33 and 34, T. 22 S., R. 4 E. MDB&M and Sec. 3 and 4; thence northwesterly along a divide ridge for approximately 0.26 miles (0.42 kilometers) to a prominence identified as 3850; thence continuing northwesterly down a spur ridge for approximately 0.43 miles (0.69 kilometers) to the intersection of said spur ridge with the South Fork Devil's Canyon; thence easterly along the South Fork Devil's Canyon for approximately 0.98 miles (1.58 kilometers) to the confluence of an intermittent tributary in T. 21 S., R. 4 E.MDB&M, the NW1/4 SE1/4, Sec. 34; thence northeasterly up a spur ridge for approximately 1.03 miles (1.66 kilometers) to the dividing ridge between Devil's Canyon and the San Antonio River drainages; thence southerly along this main dividing

ridge for approximately 1.09 miles (1.75 kilometers) to Cone Peak, the point of beginning.

C. Size of Area

The RNA contains 2787 acres (1128 hectares) of national forest land.

D. Elevations

Elevations range from the summit of Cone Peak at 5,154 feet (1,571 meters) to a low point of 640 feet (195 meters) in lower Limekiln Creek. Sea level elevation at the shoreline of the Pacific Ocean is ca 0.62 miles (one kilometer) from the RNA boundary.

F. Access to Area

Coastal access to the RNA is from State Highway 1 via a gated road ca 0.5 miles (0.8 kilometer) north of the Limekiln Creek Bridge located ca 57 road miles (91.7 kilometers) southeast of the Monterey Peninsula and ca 1.6 mile (2.6 kilometer) south of the settlement of Lucia (Location 2, Map 4). Another gated road leads off Highway 1 behind Sacred Heart Retreat (SHR) ca 0.5 mile (0.8 kilometer) south of Lucia and extends to the western edge of the drainage (Location 1, Map 4). Inland access to Cone Peak and the upper drainages of Limekiln Creek and Devils Canyon is via the paved (County-maintained) Nacimiento-Ferguson Road and the low standard unsurfaced Forest Service Cone Peak Road (22S05) (Location 3, Map 4). The RNA is traversed by the Stone Ridge Trail (4E13) from Vincente Flat Campground to Ojito through Goat Camp and the Gamboa Trail (4E11) in the upper Devil's Canyon drainage.

King City, headquarters for the Monterey Ranger District, is about 40 road miles (64 kilometers) from the RNA via the Nacimiento-Ferguson and Cone Peak Roads.

V. AREA BY COVER TYPES 1/

SAF Vegetation Types	Percent of the Total Area	Hectares	Acres
Canyon Live Oak (SAF-249)	17.2%	194	479
California Coast Live Oak (SAF-255)	12.1%	136	336
Redwood (SAF-232)	4.4%	50	124
Kuchler Vegetation Types			
California Mixed Evergreen Forest (K-25)	28.0%	316	781
Chaparral (K-29)	5.2%	59	146
Coastal Sagebrush (K-30)	4.0%	45	111
Unclassified Vegetation Types			
Grassland	15.3%	172	425
Bristlecone Fir/Mixed Conifer	5.0%	56	138
Sugar Pine/Mixed Evergreen Forest	8.8%	100	247
TOTAL	100%	1128	2787

See Vegetation Type Map (Map 5) and Figure 1.

1/ From Ecological Surveys by Todd and Virginia Keeler-Wolf (July 1977) and James R. Griffin (August 1976).

F. PHYSICAL AND CLIMATIC CONDITIONS

The Cone Peak Gradient RNA includes the drainages of Limekiln Creek, a portion of the West Fork Limekiln Creek, and the headwaters of the South Fork of Devil's Canyon (Map 3). The area has a generally southerly exposure although slopes facing in all cardinal directions are present. Topography is best described as rugged, with precipitous slopes and escarpments. In general, slopes are steepest at the upper reaches of the canyons and at the bases of the ridges.

A description of climatic conditions of the RNA is incomplete. Long-term weather records do not exist for the area but differences resulting from maritime influence and topography are extreme. A Monterey County storm-intensity recording rain gauge is situated on Mining Ridge (T. 21 S., R.4 E., MDB&M, in the NE1/4 NW1/4 of Sec. 20) some 4 miles (6.4 kilometers) north of the area. Weather records have been maintained, since about 1941, at Fort Hunter Liggett some 15 miles (24.1 kilometers) to the east of the RNA. The U.S. Coast Guard maintains a weather station at Point Sur, ca 28 miles (45 kilometers) to the northwest. Although records from these locations are not directly applicable to the RNA, they do indicate its general climatological situation. The best comparison of differences between climatic conditions at coastal sites, mid-elevation canyons, and high ridge of the Limekiln Creek watershed is discussed by Talley (1974). Based on his extrapolations, the following climatic regime is postulated for the RNA.

Precipitation ranges from a low of 28 inches (ca 711 mm) at lower elevations near the coast, an average of 70 inches (ca 1778 mm) at higher elevations, to amounts in excess of 90 inches (ca 2286 mm) on the lee side of Cone Peak. Less than 2 percent of the average annual precipitation occurs between June and September with 75 percent occurring during the October-February period. Summer storms are rare, even on the higher peak and ridges. Snow is not uncommon during the winter. Similar variations in winter temperatures are also apparent. For example, data for the December 26, 1970 to January 22, 1971 period show mean temperatures at Cone Peak of 3.9° C (39° F), a mid-elevation mean of 5.6° C (42° F), and 14.4° C (58° F) near sea level. Summer temperatures show much less variation by elevation because of stable summer temperature inversions.

Humidity tends to decrease with elevation due to maritime influence. Vapor pressure deficits are typically much higher at Cone Peak than in either the coastal or interior canyons. Observations by Monterey Ranger District Fire Management personnel indicate a propensity for strong temperature inversions, particularly during the summer and early fall period.

G. DESCRIPTION OF VALUES

1. Flora

High floristic diversity and the occurrence of biogeographically significant plant populations in the RNA are the result of an unusual combination of ecological conditions. Steep topography and edaphic variations combine with maritime climate to create a complex assemblage of habitats and their associated vegetation types. These factors have produced an unusually diverse flora containing many rare endemic species and Sierran disjuncts. The fact that many plant species are near their distributional limits within or near the RNA contributes greatly to the richness of the flora. Over 380 plant species (Appendix 3) have been identified within the Limekiln Creek and South Fork of Devil's Creek drainages (Griffin, 1976; Keeler-Wolf, 1977; Carpenter and Krabisch, in prep.) 1/ 2/ 3/. Coniferous tree species found in the area include sugar pine (Pinus lambertiana), ponderosa pine (P. ponderosa), Coulter pine (P. coulteri), Douglas fir (Pseudotsuga menziesii), the endemic bristlecone fir (Abies bracteata), coast redwood (Sequoia sempervirens), and incense cedar (Libocedrus decurrens).

The RNA is host to a large assemblage of biogeographically significant plants. Sugar pine, ponderosa pine, and incense cedar primarily occur in the Sierra Nevadas and north Coast Ranges; populations of these pines in the RNA represent important disjunct populations. In fact, the largest populations of several montane disjuncts occur in the RNA; this is true not only for sugar pine but also for the many-stemmed sedge 4/ (Carex multicaulis) 5/.

1/ Keeler-Wolf, Todd and Virginia. July 1977. A Survey of the Scientific Values of the Proposed Limekiln Creek Research Natural Area, Monterey Ranger District, Los Padres National Forest. 67 p. (mimeographed).

2/ Griffin, James R. August 1976. Ecological Survey of South Fork Devil's Canyon Candidate Research Natural Area (NW Cone Peak Region), Monterey District, Los Padres National Forest. 45 pp. (mimeographed).

3/ Carpenter, J. and S. Krabisch. (In preparation for publication). Vegetation and flora of the Cone Peak-South Fork Devil's Canyon Study Area. University of California Santa Cruz Environmental Field Program.

4/ Common names from Howitt, B.F. and J.T. Wolf. 1964. Vascular plants of Monterey County, California. Wassman J. of Biology 22: 1-184.

5/ Scientific names form Kartesz, J. and R.A. Kartesz. 1980. A synonymized checklist of the vascular flora of the United States, Canada, and Greenland. Vol. II. The biota of North America. Chapel Hill: University of North Carolina. 498 p.

silver-leaved lotus (Lotus argophyllus), fringed pine-sap (Pleuricospora fimbriolata), and mountain streptanthus (Streptanthus tortuosus). These species are more common on Cone Peak than anywhere else. Furthermore, the Cone Peak bedstraw (Galium californicum ssp. luciense), a rare endemic known only to occur on Cone Peak, is under review by the U.S. Fish and Wildlife Service for potential listing as threatened or endangered. A species list of the flora is included in Appendix 3. It was produced by combining lists from RNA Ecological Survey Reports (Keeler-Wolf 1977, Griffin 1976) with a floristic list from a botanical survey of the northern section of the RNA conducted by the University of California, Santa Cruz Environmental Field Program (Carpenter and Krabisch, in prep.).

2. Fauna

Inventories of terrestrial vertebrate fauna of the Limekiln Creek and South Fork of Devil's Creek drainages (Keeler-Wolf 1977; Mulligan et al. in prep.) include 26 reptiles and amphibians; 86 birds, not including shorebirds and sea birds, and 46 mammals. Additional fall and spring migrant bird species pass through the area. Peregrine falcons (Falco peregrinus), a state and federally listed Endangered species, and spotted owls (Strix occidentalis), a Region Five Sensitive Species, occur in the RNA. A California condor (Gymnogyps californianus), a federally listed species, was once observed in the vicinity of Cone Peak. In addition, the ringtail cat (Bassariscus astutus), a California designated fully protected species, also has been found in the area. Appendix 3 lists all vertebrate fauna found in the Limekiln and South Fork Devil's Creek drainages, including a list of species of special concern. These lists were created by combining the Limekiln Creek Ecological Survey report (Keeler-Wolf 1977) faunal lists with lists obtained from a vertebrate faunal survey of the northern section of the RNA conducted by the University of California, Santa Cruz Environmental Field Program (Mulligan et al., in press) 1/.

3. Geology

The Limekiln drainage is composed of Franciscan metamorphosed sediments and metavolcanics of the Jurassic-Cretaceous periods in addition to Mesozoic granitic rocks. The most extensive formation is the Pre-Cretaceous metamorphic Sur Series which covers over 75 percent of the drainage. Significant fault lines are present in

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1/ Mulligan, P., J. Reiss, and J. Russell. (In preparation). Terrestrial Vertebrates of the Cone Peak-South Devil's Canyon Study Area. Santa Cruz: Environmental Field Program, University of California, Santa Cruz.

the drainage. Geologic structure of the South Fork of Devil's Canyon is relatively simple. The drainage is composed of Pre-Cretaceous metamorphics, mapped as Sur Series crystalline schist with local outcrops of marble. No faults have been mapped within this drainage area.

4. Soils

Soil series have been mapped and described in the "Soil Survey of Monterey County, California" 1/. A soil map composite of sheets 122, 123, 131, and 132 from that report is presented in Figure 3. The seven soils complexes that occur within the RNA are: Cieneba-Rock outcrop complex, Cieneba-Sur-Rock outcrop complex, Gamboa-Sur-complex, Los Osos Clay loam, Pfeiffer-Rock outcrop complex, Rock outcrop-Xerorthents Association, and Sur-Junipero complex.

5. Lands

Approximately 2,147 acres (869 ha) of the area are National Forest land reserved from the public domain. The remaining area was acquired through land interchange with the U.S. Department of the Army on June 4, 1957, and is administered under the Weeks Law 2/. The entire area is withdrawn from mineral entry under the Wilderness Act of 1964, as of January 1, 1984.

6. Cultural Values

According to Joan Brandoff-Kerr, former Monterey Ranger District Archaeologist, one cultural site has been inventoried on national forest system land in T. 22 S., R. 4 E., MDB&M, the NW1/4 NW1/4 Section 15. The site is a shell midden which suggests the Limekiln Creek drainage may be archaeologically sensitive, particularly on open ridges and in prominent openings.

1/ Cook, Terry C. (April) 1978. Soil Survey of Monterey County, California. USDA-SCS in cooperation with USDA-Forest Service and University of California Agriculture Experiment Station.

2/ Weeks Law, Act of March 1, 1911 (Ch. 186, 36 Stat. 961, as amended; 16 U.S.C. 480, 485, 500, 515, 517, 517A, 518, 519, 521, 552,563)

H. IMPACTS AND POSSIBLE CONFLICTS

The Cone Peak Gradient RNA is included within the Big Sur Coastal Planning Unit for which the Final Environmental Statement was filed with the Council of Environmental Quality on November 8, 1977. The consequences of establishing this RNA were evaluated in that FES. The decision, as brought forward in the Land Management Plan, recommends establishment of the RNA. This documentation satisfies the requirements of the National Environmental Protection Act and further environmental assessment reports for the RNA are not necessary.

1. Mineral Resources

Mineral information for the area is sketchy. A mineral survey conducted by USDI, Bureau of Mines, was completed during August 1980. There is no scheduled date for publication of survey findings. Mr. Leon E. Esparza, Physical Scientist for the Bureau of Mines in Spokane, Washington, advised there were some claims for limestone in the Limekiln Creek drainage, but that there is no current activity on claims. An Oil and Gas Lease Application No. CA 5907 covers the southern portion of the area (T. 22 S., R. 4 E., MDB&M, in Section 15, SE1/4 Section 10, SE1/4 SW1/4 Section 11, Sections 13, 14, and 23. A second Oil and Gas Lease Application No. CA 11342 covers the northern portion of the area within T. 21 S., R. 4 E., MDB&M, Sections 33, 34 and 35. Since these lease applications are within the Ventana Wilderness, approvals, if granted, would stipulate no surface entry. Geothermal potential has not been investigated. However, according to Mr. Hollis Record, Geologist, Los Padres National Forest, there is some evidence suggesting that geothermal potential may exist along a fault line from Cone Peak northward into the Wilderness. Withdrawal of the area from mineral entry falls within the purview of the Wilderness designation and will not be undertaken as a separate action for Research Natural Area purposes.

2. Grazing

Ninety percent of the RNA is within the Twitchell Grazing Allotment. Twenty-five head of cattle are permitted on the allotment for an 8-month season for a total of 200 AUMs. Actual grazing on the RNA is incidental due to the difficult access into the area. The small amount of grazing that does take place is confined almost entirely to the open grassland type and associated coast live oak woodlands along the dividing ridge between Limekiln Creek and West Fork. Historic grazing is assumed to have contributed to the maintenance of the open grassland type. Although livestock grazing has modified natural conditions on that ridge to some extent, with some sites dominated by introduced species typical of the annual grassland type, grazing is long-standing and the resulting changes in herbaceous vegetation undoubtedly took place during the Spanish-Mexican and American Pioneer period roughly from 1770 to 1905. Because of its limited extent, grazing has a negligible effect on the RNA's values. Furthermore, livestock grazing will be closely administered by allotment grazing plans and future opportunities to reduce use levels will be considered as appropriate. New physical range improvements will not be permitted,

3. Timber

Commercially important tree species occur in the RNA, principally coast redwood, Douglas-fir, incense cedar, ponderosa pine, and sugar pine. They occur in small, scattered groups. Use of this resource for timber harvest is precluded because of designation of the entire area as Wilderness. There are no SAF record trees known for the area.

4. Watershed Values

The RNA includes all or part of three drainages (1) Upper reaches of the South Fork of Devil's Canyon which drains into Big Creek before entering the Pacific Ocean ca 1.5 miles (2.4 kilometers) north of Gamboa Point, (2) Limekiln Creek which drains into the Pacific Ocean at Rockland Landing (abandoned), and (3) West Fork, a tributary of Limekiln Creek, which joins the main stream in T. 22 S., R, 4 E., MDB&M, S1/2 Section 15, outside the RNA. Some riparian zones exist, principally in association with the redwood forest community in lower Limekiln Creek.

5. Recreation Values

Present use of the area is for dispersed wilderness hiking and camping. Some hunting and fishing occur. Wilderness campsites are located at Goat Camp and Trail Spring Camp within the RNA, at Ojito Camp near the northwestern boundary, and at Vicente Camp outside the area in Hare Canyon. Some sightseeing traffic traverses the Cone Peak Road to an observation point on the northeastern flank of Cone Peak. These activities occur mostly along the existing trails and have not affected RNA values. To discourage recreational use in the RNA, all camp signs and camp designations will be removed from recreation maps. In addition, trails will be maintained at a low level or not at all.

6. Wildlife and Plant Values

The area furnishes habitat for blacktailed deer, black bear, mountain lion, and various other wildlife species. A limited trout fishery exists in the lower reaches of Limekiln Creek and West Fork. Maintenance of this area in natural condition is consistent with the Ventana Wilderness Management Plan and with present policies related to habitat diversity and viable populations.

7. Wilderness, et al.

The RNA is entirely within the Ventana Wilderness designated by the Endangered American Wilderness Act of 1978. Also included is an area proposed for inclusion in the National Registry of Natural Landmarks. No other special management designations are involved. Activities which conflict with established Wilderness practice will not be allowed. Wilderness management policy prevails in cases where it is more restrictive (The Regional Forester must approve all research permits for RNAs within Wilderness areas.) The biosphere reserve designation does not affect management of the area.

8. Transportation Plans

Designation of the RNA will not affect forest, county or state transportation systems.

I. MANAGEMENT PLAN

1. Vegetation Management

Grazing is incidental in the area and will not be utilized for vegetation management. Prescribed burning, however, will be used to maintain vegetation types, particularly chaparral, in younger age classes through the simulation of natural fire. Old age (>40 years) chaparral poses an imminent threat to conifer stands because wildfires often crown from brush into the isolated conifer stands that are common in the region. As a result, stands can be eliminated by near-complete mortality of seed trees that serve as a source for postfire conifer regeneration 1/. Scheduling of prescribed burns is covered under the West Fuels Management Block of the Monterey Ranger District, but is no longer applicable because a wildfire burned the entire area in 1985 (see fire history below).

2. Fences

Of the four fences that occur in the RNA only one, a 0.85 mile drift fence, is functional. It begins in T. 22 S., R. 4 E., in the SE1/4, NE1/4, NW1/4 of section 10, and ends in the SE1/4, SW1/4, NW1/4 of section 11. Fences are not necessary to protect the area.

3. Recent Fire History

On July 6, 1985, lightning strikes ignited three separate coastal fires both north and south of the RNA. By July 9th, the Rat Fire, which had begun just north of the U.C. Landels-Hill Big Creek Reserve, had spread south into and through the RNA, ultimately burning it entirely. By July 16th, the fire was contained, but only after it had consumed ca 36,500 acres (14,780 hectares). Fire suppression within the RNA consisted entirely of handline construction and fire retardant drops; bulldozer lines were not constructed in the RNA. Fire retardant contains chemicals that degrade that have no lasting effect on the environment.

1/ Talley, S.N, and J.R. Griffin. 1980. Fire ecology of a montane forest, Junipero Serra Peak, California. Madrono 27:49-60.

Lightning-caused fires are relatively common in this region (Griffin and Talley, 1980 1/); some have burned for weeks, covering as much as 135,850 acres (55,000 hectares) (1906) and 177,840 acres (72,000 hectares) (1977). Plant communities of the Santa Lucia Mountains are well adapted to this regime of periodic fire. Thus, this recent fire provides an opportunity to chronicle both immediate post-fire effects and long-term successional changes in the various plant communities. Furthermore, the list of plants and animals (Appendix 3) should expand considerably with the appearance of early post-fire species.

J. ADMINISTRATIVE RECORDS AND PROTECTION

The official responsibility for administration and protection of the RNA is with the District Ranger, Monterey Ranger District, 406 S. Mildred, King City, California 93930. Attention will be given to the management and control of wilderness users and domestic livestock to assure that use levels do not jeopardize RNA values. There are no anticipated needs for increased law enforcement action.

The research coordinator is the Director, Pacific Southwest Forest and Range Experiment Station, 1960 Addison Street, Box 245, Berkeley, California 94701. This person is responsible for coordinating research in the area, maintaining a file of research data, and curating herbarium and species samples collected on the area. Specimens will be stored primarily at the University of California Santa Cruz and Berkeley campuses. Research permit applications will be forwarded by the Station Director to the Regional Forester for approval, as the RNA is in a wilderness area.

1/ Griffin, J. R. and S. N. Talley. 1980. Fire History of Junipero Serra Peak, central coastal California. In M. A. Stokes and J. H. Dieterich, tech. coord. Proceedings of the Fire History Workshop Gen. Tech. Rep. RM-81, U.S.D.A. Forest Service, Rocky Mountain Forest and Range Experiment Station.

K. REFERENCES

Information regarding the Cone Peak Gradient RNA has come from file records of Los Padres National Forest, various resource specialists on the Forest and the Ranger District, and from the previously referenced Ecological Surveys by Keeler-Wolf and Griffin. Additional references that contain information pertinent to the Cone Peak and Limekiln Creek areas are listed below.

1. Compton, R. R. 1960. Charnockitic rocks in Santa Lucia Range, California. Am. Jour. Sci. 258:609-636.

2. Compton, R. R. 1966. Granitic and metamorphic rocks of the Salinian block, California Coast Ranges. Calif. Div. of Mines and Geol. Bull. 190, p. 277-287.

3. Gilbert, W. G. 1973. Franciscan rocks near Sur Fault Zone, Northern Santa Lucia Range, California. Geol. Soc. Am. Bull. 84:3317-3328.

4. Griffin, J. R. 1975. Plants of the highest Santa Lucia and Diablo Range peaks, California. USDA Forest Service Research Paper PSW-110. 50 pp.

5. Haller, J. R. 1972. Habitat types in the Limekiln Creek Drainage. Unpublished annotated list on file at PSW. 4 pp.

6. Hart, E. W. 1966. Mines and mineral resources of Monterey County, California. County Report number 5. Calif. Div. of Mines and Geol. 142 pp.

7. Reiche, P. 1937. Geology of the Lucia quadrangle. California Univ. Pubs. Geol. Sci. Bull. 24:115-168.

8. Stebbins, G. L. and J. Major. 1965. Endemism and speciation in the California flora. Ecol. Monogr. 35:1-35.

9. Talley, S. N. 1974. The ecology of Santa Lucia fir (Abies bracteata) a narrow endemic of California. PhD. thesis, Duke Univ., Durham.

10. V. T. M. Survey (St. John). 1932. Lucia and Junipero Serra quadrangles. Original maps on file at PSW, Berkeley, California.

L. APPENDICES

1. Management Area Prescription Gradient for Research Natural Areas on Los Padres National Forest.

2. Region 5 Target Research Natural Area System.

3. Species List and Special Status Species for Cone Peak Gradient RNA.

MANAGEMENT AREA 66

Area Description:

Management Area 66 consists of six separate land units comprising 7,745 total acres. These units are Research Natural Areas and are situated as follows:

66a, "Cone Peak RNA," three miles east of Lopez Point between Cone Peak and Limekiln Creek (Monterey RD) within the Highway 1 scenic corridor;

66b, "Wagon Caves RNA," nine miles northeast of Lopez Point on lower Rattlesnake Creek (Monterey RD);

66c, "Water Canyon RNA," three miles northeast of San Luis Obispo in the vicinity of Mount Lowe (Santa Lucia RD);

66d, "American Canyon RNA," nine miles east of Santa Margarita Lake at Pine Mountain (Santa Lucia RD);

66e, "San Emigdio Mesa RNA," fifteen miles west of Frazier Park in the vicinity of Mount Abel (Mount Pinos RD); and,

66f, "Ventana Cone RNO," seven miles northwest of Big Sur (Monterey RD).

Management Emphasis: Protection and management of candidate and proposed Research Natural Areas

The area is managed for non-destructive, non-manipulative research and study. Cultural resources management emphasizes complete inventory and evaluation of properties with a high priority placed on enhancement through research and study. Other uses are secondary to scientific use. RNA's may be located within designated wilderness. Landscapes will essentially possess the visual characteristics of a natural condition.

ELEMENT/ MANAGEMENT PRACTICE NUMBER	MANAGEMENT GUIDELINES	STANDARDS
General	Prepare an Establishment Report and management plan by 1990.	
Cultural Resources/ 1, 2, 4	Management of cultural resources emphasizes complete inventory and evaluation with a high priority placed on enhancement through research and study.	
Recreation/ 33, 44, 46	Recreational use should not be encouraged. Where it is not practical to eliminate recreational use, only primitive or semi-primitive non-motorized use will be permitted.	
	New recreational improvements are not permitted.	
	Trails to and through RNA's are permitted if they promote or do not detract from scientific use.	Trails are maintained at level 1 or 2.
Visual Resources/ 5a	Maintain a natural landscape.	

SUMMARY
VISUAL QUALITY OBJECTIVES

CLASS	% ACRES
Preservation	100
MINIMUM VQI =	69

APPENDIX 1.

Wilderness Management/ 9	Where an RNA is located within an established Wilderness, Wilderness implementation direction applies.
Fish and Wildlife/ 10, 11	Wildlife improvements may be permitted if needed for sensitive or threatened and endangered species, or if they would not significantly alter the botanical community for which the RNA was established.
Range Resource/ 14, 15	Grazing opportunities will not be expanded and may be eliminated as identified in the RNA management plan.
Timber/ 19	Neither timber harvest nor reforestation are permitted.
Special Uses/ 25	No special use permits will be granted unless they aid in scientific study.
Withdrawals/ 26	RNA's will be recommended for withdrawal from mineral entry. A "no surface occupancy" stipulation will be included in any recommendation for mineral leases.
Transportation/	Roads will not be constructed in RNA's.
Fire/ 34, 35, 36, 37, 38	Suppression methods will be selected to minimize impacting RNA values. Prescribed burning is permitted only to perpetuate ecosystems.

APPENDIX 2

APPENDIX 2.

Display of the "target" research natural area system for the California Region

MAJOR ELEMENTS	NOTES	CHARACTERISTIC SPECIES	PHYSIOGRAPHIC PROVINCES									
			1	2	3	4a	4b	5a	5b	7a	7b	8a	10a
Forest Elements													
Aspen	SAF 217	Populus tremuloides								X	X		
California Black Oak	SAF 246	Quercus kelloggii		X				X		X	X		
Bristlecone Pine	SAF 209	Pinus aristata (P.longaeva)					X						
Douglas-Fir - Western hemlock	SAF 230	Pseudotsuga menziesii, Tsuga heterophylla	X					X					
Interior Ponderosa Pine	SAF 237	Pinus ponderosa, Artemisia tridentata, Purshia tridentata			X					X			
Jeffrey Pine	SAF 247	Pinus jeffreyi			X		X			X	X		
Knobcone Pine	SAF 248	Pinus attenuata	X	X				X	X				
Limber Pine	SAF 219	Pinus flexilis					X						
Lodgepole Pine	SAF 218	Pinus contortat spp. murrayanna					X						
Sierra Nevada Mixed Conifer	SAF 243	Pinus ponderosa, P. lambertiana, Abies concolor, Calocedrus decurrens Pseudotsuga menziesii	X	X						X			
Douglas-fir - Tanoak - Pacific Madrone	SAF 234	Lithocarpus densiflorus, Arbutus menziesii	X					X	X				
Mountain Hemlock	-	Tsuga mertensiana								X			
Pacific Douglas-fir	SAF 229	Pseudotsuga menziesii	X					X					
Pacific Ponderosa Pine	SAF 245	Pinus ponderosa, Quercus kelloggii, Chamaebatia foliolosa, Arctostapylos spp.								X	X		
Ponderosa Pine - Douglas-Fir	SAF 244	Pinus ponderosa, Pseudotsuga menziesii	X	X				X		X			
Port Orford-cedar	SAF 231	Chamaecyparis lawsoniana	X										
Red fir	SAF 207	Abies magnifica (including var. shastensis)	X	X						X	X		
Redwood	SAF 232	Sequoia sempervirens						X	X				
Sugar Pine-White Fir	-	Pinus lambertiana, Abies concolor								X			
White Fir	SAF 211	Abies concolor	X	X					X	X	X	X	
Woodland Elements													
Black Cottonwood-Willow	SAF 222	Populus trichocarpa, Salix spp.	X					X					
Blue Oak-Digger Pine	SAF 250	Quercus douglasii, Pinus sabiniana		X						X	X		
California Coast Live Oak	SAF 255	Quercus agrifolia										X	
Engelmann Oak	-	Quercus engelmannii											X
Foothill Woodland	K-26	Quercus spp., annual grass spp.		X				X	X	X	X		
Oregon White Oak	SAF 233	Quercus garryana						X					
Pinyon-Juniper	SAF 239	Pinus monophylla, Juniperus osteosperma					X					X	
Western Juniper	SAF 238	Juniperus occidentalis			X								

MAJOR ELEMENTS	NOTES	CHARACTERISTIC SPECIES	PHYSIOGRAPHIC PROVINCES										
			1	2	3	4a	4b	5a	5b	7a	7b	8a	10a
Scrub and Chaparral Elements													
Chamise Chaparral	K-29	Adenostema fasciculatum, Arctostaphylos spp., Ceanothus spp.						X			X	X	X
Coastal Sage	K-30	Artemisia californica, Salvia spp., Eriogonum fasciculatum							X			X	X
Coulter Pine-Chaparral		Pinus coulteri, Quercus spp., chaparral species							X			X	X
Montane Chaparral	K-31	Quercus, Ceanothus, Arctostaphylos, Castanopsis	X							X	X		
Mountain Mahogany		Cercocarpus spp.										X	
Serpentine Chaparral		Quercus durata, Ceanothus jepsonii, Arctostaphylos viscida, viscida, Heteromeles arbutifolia						X					
Grassland and Meadow Elements													
Alpine Meadow		Carex spp., Centiana spp.									X		
Fescue-Oatgrass	K-40	Festuca idahoensis, Danthonia californica						X	X				
Montane Wet Meadow		Carex spp., Juncus spp., Camassia sp., Veratrum sp.									X		
Subalpine Wet Meadow		Carex spp., Centiana spp., Deschampsia spp.									X		
Marsh and Bog Elements													
Darlington Bog		Darlingtonia californica	X							X			
Moss Bog		Sphagnum spp.	X					X		X			
(Special Elements)													
Alpine Pellfields		Cushion plants, forbs, and dwarf shrubs	X				X				X		
Bigcone Douglas-Fir		Pseudotsuga macrocarpa							X			X	X
Brewer Spruce		Picea breweriana	X										
Cuyamaca Cypress		Cupressus arizonica var. stephensonii											X
Enriched Conifer		Numerous coniferous species in association	X										
Foxtail Pine		Pinus balfouriana	X								X		
MacNab Cypress		Cupressus macnabiana		X				X		X			
Modoc Cypress		Cupressus bakeri	X	X	X					X			
Parry Pinyon		Pinus quadrifolia											X
Piute Cypress		Cupressus arizonica var. nevadensis									X		
Santa Lucia Fir		Abies bracteata							X				
Sargent Cypress		Cupressus sargentii								X			
Sierra Redwood (Giant Sequoia)		Sequoiadendron gigantea								X	X		
Tecate Cypress		Cupressus guadalupensis (Syn. C. forbesii)											X
Washoe Pine		Pinus washoensis								X			
Other Unique Ecosystems		Determined case by case	X	X	X	X	X	X	X	X	X	X	X

APPENDIX 3: SPECIES LISTS AND SPECIAL STATUS SPECIES

This section contains lists of the vascular plants and vertebrate fauna observed within the RNA. The lists were created by combining information from the two USFS surveys of the RNA (Griffin 1976; Keeler-Wolf 1977) with the recent flora and fauna surveys conducted through the University of California, Santa Cruz Environmental Field Program. The lists are arranged in the fashion typical for each group: faunal lists are arranged phylogenetically according to order, family, and species, while the plant list is arranged phylogenetically by division, class, and order, but alphabetically by family, genus, and species. Scientific names for all plant species except for those only found by Keeler-Wolf (1977) follow those given in "A Synonymized Checklist of the Vascular Flora of the United States, Canada, and Greenland; Volume 2" (Kartesz and Kartesz 1980); thus, several plant names differ from the earlier lists of Griffin (1976) and Keeler-Wolf (1977). Tree species names follow "Checklist of United States Trees (Native and Naturalized)" by E.L. Little, Jr., U.S.D.A. Forest Service Handbook 541 (1979).

Many plants and vertebrates of the RNA are considered species of special concern in California, or are protected by state or federal law. These species are presented at the end of each list.

PLANTS OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA

1 = Found by Keeler-Wolf, 1977
2 = Found by Griffin, 1976
3 = Found by Carpenter and Krabisch, in preparation for publication

Division TRACHEOPHYTA

Subdivision LYCOPSIDA
Class LYCOPODINAE
Order SELAGINALLALES

SELAGENELLACEAE: Moss-Fern Family

Selaginella bigelovii (1, 2, 3)	Bushy Selaginella

Subdivision SPHENOPSIDA
Class EQUISETAE

EQUISETACEAE: Horsetail Family

Equisetum telmateia braunii (3)	Giant Horsetail

Subdivision PTEROPSIDA
Class FILICINAE
Order FILICALES

ADIANTNACEAE (PTERIDACEAE)

Adiantum capillus-veneris (1, 3)	Venus-Hair Fern
Adiantum jordanii (1, 2, 3)	California Maidenhair Fern
Adiantum pedatum aleuticum (1, 3)	Five-Finger Fern
Aspidotis californica (1, 3)	California Lace Fern
Cheilanthes cooperae (1)	Cooper's Lip Fern
Cheilanthes covillei (1, 3)	Coville's Lace Fern
Cheilanthes gracillima (1, 2, 3)	Lace Fern
Cheilanthes intertexta (1, 2, 3)	Coastal Lip Fern
Pellaea andromedaefolia (1, 3)	Coffee Fern
Pellaea mucronata (1, 2, 3)	Bird's Foot Fern
Pityrogramma triangularis (1, 2, 3)	Goldenback Fern

ASPLENIACEAE (ASPIDIACEAE): Wood Fern Family

Cystopteris fragilis (1, 2)	Brittle Fern
Dryopteris arguta (1, 3)	California Wood Fern
Polystichum dudleyi (1, 3)	Dudley's Shield Fern
Polystichum californicum (3)	California Shield Fern
Polystichum munitum curtum (1, 2, 3)	Sword Fern
Polystichum munitum munitum (1, 3)	

BLECHNACEAE: Deer Fern Family

Woodwardia fimbriata (1, 3)	Giant Chain Fern

DENNSTAEDITIACEAE: Bracken Family

Pteridium aquilinum pubescens (1, 3)	Western Bracken

POLYPODIACEAE: Polypody Family

Polypodium californicum (1, 2, 3)	California Polypody

Subdivision PTEROPSIDA
Class CONIFERAE
Order CONIFERALES

CUPRESSACEAE: Cypress Family

Libocedrus decurrens (1, 3)	Incense Cedar

PINACEAE: Pine Family

Abies bracteata (1, 2, 3)	Santa Lucia Fir
Pinus coulteri (1, 2, 3)	Coulter Pine
Pinus lambertiana (1, 2, 3)	Sugar Pine
Pinus ponderosa (1, 2, 3)	Ponderosa Pine
Pseudotsuga menziesii (1)	Douglas Fir

TAXODIACEAE: Redwood Family

Sequoia sempervirens (1, 3)	Redwood

Subdivision PTEROPSIDA
Class ANGIOSPERMAE
Subclass DICOTYLEDONES

ACERACEAE: Maple Family

Acer macrophyllum (1, 2, 3)	Big Leaf Maple

ANACARDIACEAE: Sumac Family

Toxicodendron dibersilobum (1, 2, 3)	Poison Oak

APIACEAE: Carrot Family

Daucus pusillus (3)	Rattlesnake Weed, Yerba Vibra
Foeniculum vulgare (1)	Sweet Fennel
Heracleum lanatum (1)	Cow Parsnip
Osmorhiza chilensis (3)	Wood Cicely
Sanicula crassicaulus (1, 2, 3)	Snakeweed, Gambleweek
Torilis arvensis purpurea (3)	Hedge Parsley

APOCYNACEAE

Cycladenia humilis venusta (1, 2, 3)	Cycladenia

ARALIACEAE

Aralia californica (1, 2, 3)	Elk Clover

ASCLEPIACACEAE: Milkweed Family

Asclepias californica greene (1, 2, 3)	Round-Hooded Milkweed

ASTERACEAE: Sunflower Family

Achillea millefolium californica (3)	Yarrow, Milfoil
Agoseris grandiflora (3)	Large-Flowered Agoseris
Agoseris heterophylla (3)	Mountain Dandelion
Artemesia californica (1)	California Sagebrush
Artemesia douglasiana (1)	Douglas's Mugwort
Aster chilensis (1)	Chilean Aster
Baccharis pilularis (1, 3)	Coyote Brush
Brickellia californica (1, 3)	California Bricklebrush
Calycadenia truncata (1, 3)	Rosin Weed
Centauria melitensis (1, 3)	Tocalote
Chrysothamnus nauseosus albicaulis (2)	Rabbitbrush
Chrysothamnus nauseosus mohavensis (3)	
Cirsium californicum (1, 2, 3)	Bigelow Thistle
Conyza canadensis (1)	Horseweed
Corethrogyne filaginifolia glomerata (3)	Corethrogyne
Ericameria aborescens (3)	Golden Fleece
Erigeron foliosus stenophyllus (3)	Leafy Daisy
Erigeron petrophilus (1, 2, 3)	Rock Daisy
Eriophyllum confertiflorum (1, 2, 3)	Golden Yarrow
Eriophyllum staechadifolium (1)	Lizard Tail
Filago californica (3)	California Cotton Rose
Gnaphalium beneolens (1, 3)	Fragrant Everlasting
Gnaphalium bicolor (1, 3)	Bioletti's Cudweed
Gnaphalium californicum (1, 3)	California Everlasting
Gnaphalium microcephalum (1)	White Everlasting
Gnaphalium palustre (1)	
Gnaphalium ramosissimum (1)	
Hazardia squarrosa (1, 3)	Sawtooth Goldenbrush
Heterotheca camphorata (3)	Hairy Golden Aster
Heterotheca sessilflora (1, 3)	
Hieracium albiflorum (1, 2, 3)	White-Flowered Hawkweed
Hieracium argutum parishii (1, 2, 3)	Southern California Hawkweed
Hulsea heterochroma (3)	Red-Eyed Hulsea
Hypochoeris glabra (3)	Smooth Cat's Ear
Lactuca serriola (3)	Prickly Lettuce
Lagophylla ramosissima (1)	Common Hareleaf
Malacothrix clevelandii (3)	Cleveland's Malacothrix

Madia elegans vernalis (1, 3)	Common Madia
Madia exigua (3)	Little Tarweed
Madia madioidies (1, 2, 3)	Woodland Madia
Microseris heterocarpa (1)	
Microseris lindleyi (3)	Uropappus
Petasites frigidus var. palmatus (1)	Western Coltsfoot
Rafinesquia californica (3)	California Chickory
Silybum marianum (1, 3)	Milk Thistle
Solidago californica (1, 2, 3)	California Goldenrod
Solvia sessilis (1)	Common Salvia
Sonchus oleraceus (3)	Common Sow Thistle
Stephanomeria cichoriacea (1)	
Stephanomeria virgata pleurocarps (1, 3)	Tall Stephanomeria
Taraxacum sp. (3)	Dandelion

BERBERIDACEAE: Barberry Family

Mahonia nervosa (3)	Oregon Grape

BETULACEAE: Birch Family

Alnus rhombifolia (1, 3)	White Alder

BORAGINACEAE: Borage Family

Amsinckia intermedia (3)	Common Fiddleneck
Cryptantha intermedia (3)	Common Cryptantha
Cryptantha muricata Jonesii (1, 3)	Prickly Cryptantha
Cryptantha muricata muricata (3)	
Cryptantha rattanii ? (3)	Rattan's Cryptantha
Cynoglossum grande (3)	Western Hound's Tongue
Plagiobothrys nothofulvus (1, 3)	Popcorn Flower

BRASSICACEAE: Mustard Family

Arabis breweri (1, 2, 3)	Brewer's Rock Cress
Barbarea orthoceras (3)	Winter-Cress
Brassica nigra (1)	Black Mustard
Capsella bursa-pastoris (1)	Shepherd's Purse
Cardamine californica (1, 3)	Toothwort, Milkmaids
Cardamine oligosperma (1)	Hill-Cress
Caulanthus lasiophyllus (3)	California Mustard
Erysimum capitatum (1, 2, 3)	Western Wallflower
Streptanthus glandulosus (1)	Common Jewel-Flower
Streptanthus tortuosus (1, 3)	Mountain Streptanthus
Thysanocarpus curvipes (3)	Hairy Fringe Pod

CAPRIFOLIACEAE: Honeysuckle Family

Lonicera hispidula vacillans (1, 2, 3)	Hairy or California Honeysuckle
Lonicera interrupta (1, 2, 3)	Chaparral Honeysuckle
Sambucus mexicana (1, 2, 3)	Blue Elderberry
Symphoricarpos mollis (1)	Creeping Snowberry

CARYOPHYLLACEAE: Pink Family

Cerastium glomeratum (3)	Mouse-Ear Chickweed
Cerastium viscosum (1)	Sticky Mouse-Ear
Minuartia douglasii (1, 2, 3)	Douglas's Sandwort
Silene antirrhina (3)	Sticky Catchfly
Silene californica (3)	California Indian Pink
Silene gallica (1, 3)	Common Catchfly
Silene multinervia (3)	Many-Nerved Catchfly
Stellaria media (1, 3)	Common Chickweed

CONVOLVULACEAE: Morning Glory Family

Calystegia macrostegia cyclostegia (1, 3)	Coast Morning-Glory
Calystegia fulcrata pedicellata (3)	Wooly Morning-Glory
Calystegia occidentalis (1)	Western Morning-Glory
Cuscuta californica (1, 2, 3)	California Dodder

CISTACEAE: Rock Rose Family

Helianthemum scoparium (3)	Rush Rose

CORNACEAE: Dogwood Family

Cornus sericea ssp. occidentalis (1)	Western Creek Dogwood

CRASSULACEAE: Stonecrop Family

Dudleya cymosa minor (3)	Goldman's Dudleya
Dudleya caespitosa (1)	Sea Lettuce

CUCURBITACEAE: Gourd Family

Marah fabaceus (1, 3)	Common Manroot

ERICACEAE: Heather Family

Arbutus menziesi (1, 2, 3)	Madrone
Arctostaphylos tomentosus ssp. crustacea (1)	
Arctostaphylos glandulosa (1, 2, 3)	Eastwood's Manzanita
Arctostaphylos hooveri (1, 2, 3)	Hoover's Manzanita
Chimaphila menziesii (2, 3)	Western Pipsissiwa
Pleuricospora fimbriolata (2, 3)	Fringed Pine-Sap
Vaccinium ovatum (1)	California Huckleberry

EUPHORBIACEAE: Spurge Family

Eremocarpus setigerus (1)	Turkey Mullein
Euphorbia lathyris (1)	

FUMARIACEAE: Bleeding Heart Family

Dicentra chrysantha (1)	Golden Ear Drops

FABACEAE: Pea Family

Astragalus nuttallii (1)	Gray Loco
Lathyrus vestitus puberulus (1, 2, 3)	Common Pacific Pea
Lotus argophyllus (1, 2, 3)	Silver-Leaved Lotus
Lotus benthamii (1)	Bentham's Lotus
Lotus crassifolius (1, 3)	Broad-Leaved Lotus
Lotus grandiflorus var. mutubalis (1)	Grand Lotus
Lotus humistratus (1, 3)	Short-Podded Lotus, Cholchita
Lotus micranthus (1, 3)	Small-Flowered Lotus
Lotus purshianus (3)	Spanish Clover
Lotus salsuginosus (1)	
Lotus scoparius (1, 3)	Deerweed
Lotus strigosus (1, 2, 3)	Bishop Lotus
Lupinus abramsii (2, 3)	Abram's Lupine
Lupinus albifrons (1)	Silver Lupine
Lupinus arboreus (1)	Bush Lupine
Lupinus bicolor tridentatus (3)	Lindley's Annual Lupine
Lupinus cervinus (2, 3)	Santa Lucia Deer Lupine
Lupinus concinnus (1)	Bajada Lupine
Lupinus hirsutissimus (1, 3)	Stinging Lupine
Lupinus latifolius (1)	
Lupinus nanus (3)	Sky Lupine
Lupinus variicolor (1)	
Medicago polymorpha (1)	
Trifolium ciliolatum (3)	Tree Clover
Trifolium tridentatum (1, 2, 3)	Tomcat Clover
Trifolium bifidum (1)	Notch-Leaf Clover
Trifolium microcephalum (1)	Maiden Clover

FAGACEAE: Oak Family

Lithocarpus densiflora (1, 2, 3)	Tanbark Oak
Quercus agrifolia (1, 3)	Coast Live Oak, Encina
Quercus chrysolepis (1, 2, 3)	Canyon, Maul, or Golden Cup Oak
Quercus kelloggii (3)	California Black Oak
Quercus wislizenii (1, 2, 3)	Interior Live Oak
Quercus wislizenii var. frutescens (1)	

GARRYACEAE: Silk Tassel Family

Garrya flavescens pallida (1, 2, 3)	Ashy Silk-Tassel

GERANIACEAE: Geranium Family

Erodium botrys (1)	White-Stemmed Filaree
Erodium cicutarium (1, 3)	Red-Stemmed Filaree
Geranium dissectum (1)	Cut-Leaved Geranium
Geranium molle (1)	Dove's Foot Geranium

HYDROPHYLLACEAE: Waterleaf Family

Emmeanthe penduliflora (3)	Whispering Bells
Eriodictyon californicum (1, 2, 3)	Yerba Santa
Eucrypta chrysanthemifolia (1)	Common Eucrypta
Nemophila menziesii (3)	Baby Blue Eyes
Nemophila parviflora (1, 2, 3)	Small-Flowered Nemophila
Phacelia cicutaria var. hispida (1)	Caterpillar Phacelia
Phacelia douglasii (1, 2, 3)	Douglas's Phacelia
Phacelia egena (1, 2, 3)	
Phacelia imbricata (1, 2, 3)	Imbricate Phacelia
Phacelia malvifolia (1, 2, 3)	Stinging Phacelia

LAMIACEAE: Mint Family

Marrubium vulgare (1)	Common Hoarhound
Monardella villosa ssp. sheltonii (1, 2, 3)	Coyote Mint, Pennyroyal
Monardella villosa ssp. subglabra (1)	
Salvia columbariae (1, 3)	Chia
Salvia leucophylla (1)	
Salvia mellifera (1)	Black Sage
Satureja chamissonis (1)	Yerba Buena
Scutellaria tuberosa (3)	Dannie's Skullcap
Stachys bullata (1, 3)	Hedge Nettle
Stachys pycnantha (1)	Short-Spiked Hedge Nettle
Trichostema lanceolatum (1)	Vinegar Weed
Trichostema lanatum (1, 3)	Wooly Blue-Curls

LAURACEAE: Laurel Family

Umbrellularia californica (1, 2, 3)	California Bay, Laurel

LOASACEAE: Loasa Family

Mentzelia micrantha (3)	San Luis Stick-Leaf

LORANTHACEAE: Mistletoe Family

Arceuthobium campylopodom (1, 2, 3)	Western Dwarf Mistletoe
Phoradendron villosum (2)	Mistletoe

MALVACEAE: Mallow Family

Malacothamnus palmeri lucianus (3)	Arroyo Seco Bush Mallow

MYRICACEAE: Myrtle Family

Myrica californica (1)	Wax Myrtle

ONAGRACEAE: Evening Primrose Family

Camissonia hirtella (3)	Small Primrose
Clarkia lewisii (3)	Hill Clarkia
Clarkia purpurea quadrivulnera (3)	Four Spot or Wine Spot Clarkia
Clarkia rhomboidea (1, 2, 3)	Rhomboid Clarkia
Clarkia speciosa (1)	Redspot Clarkia
Clarkia unigulata (3)	Canyon or Elegant Clarkia
Epilobium canum angustifolium (1, 2, 3)	California Fuschia
Epilobium canum mexicana (1, 2, 3)	
Epilobium minutum (1, 2)	Minute Willow Herb
Epilobium paniculatum (1)	Parched Fireweed

OROBANCHACEAE: Broomrape Family

Orobanche bulbosa (3)	Chaparral Broomrape
Orobanche californica (3)	California Broomrape

OXALIDACEAE: Wood-Sorrel Family

Oxalis oregana (1)	Redwood Sorrel

PAEONIACEAE: Peony Family

Paeonia californica (1)	California Peony

PAPAVERACEAE: Poppy Family

Argemone munita (3)	Prickly Poppy, Chicolote
Dendromecon rigida (1, 3)	Bush or Tree Poppy
Eschscholzia caespitosa (3)	Tufted Eschscholzia
Eschscholzia californica (1, 3)	California Poppy

PLANTAGINACEAE: Plaintain Family

Plantago lanceolata (1)	English Plantain

PLATANACEAE: Sycamore Family

Plantanus racemosa (1, 3)	Sycamore

POLEMONIACEAE: Phlox Family

Allophyllum divaricatum (3)	Straggling Gilia
Collomia heterophylla (1, 2, 3)	Varied-Leaved Collomia
Gilia clivorum (3)	Many-Stemmed Gilia
Gilia splendens (3)	Splendid Gilia
Linanthus androsaceus luteolus (3)	Common Linanthus
Linanthus androsaceus micranthus (1, 2, 3)	
Linanthus ciliatus (1)	Whisker-Brush, Bristle-Leaf Linanthus
Linanthus dichotomous (3)	Evening Snow
Linanthus liniflorus pharnaceoides (1, 3)	Flax-Flowered Linanthus

POLYGALACEAE: Milkwort Family

Polygala californica (1, 3)	California Milkwort

POLYGONACEAE: Buckwheat Family

Chorizanthe californica (1)	
Chorizanthe douglasii (1, 3)	Douglas's Spine Flower
Chorizanthe membranacea (1, 3)	Spine Flower
Chorizanthe staticoides (1, 3)	Turkish Rugging
Chorizanthe vortriedei (1)	
Eriogonum covilleanum (3)	Coville's Eriogonum
Eriogonum elongatum (1, 3)	Long-Stemmed Eriogonum
Eriogonum fasciculatum foliosum (1, 2, 3)	California Buckwheat
Eriogonum gracile (2, 3)	Slender Wooly Eriogonum
Eriogonum latifolium (1)	
Eriogonum parvifolium (1)	Dune Eriogonum
Eriogonum roseum (1, 3)	Virgate Eriogonum
Eriogonum saxatile (1, 2, 3)	Rock Eriogonum
Rumex acetosella (1, 3)	Sheep Sorrel

PORTULACACEAE: Purslane Family

Calandrinia ciliata (3)	Redmaids
Claytonia parviflora (3)	Miner's Lettuce
Claytonia perfoliata (1, 3)	

PRIMULACEAE: Primrose Family

Anagallis arvensis (1, 3)	Scarlet Pimpernel
Trientalis borealis latifolia (1, 3)	Starflower

RANUNCULACEAE: Buttercup Family

Aquilegia formosa var. truncata (1)	Crimson Columbine
Clematis Lasiantha (1, 3)	Virgin's Bower
Clematis ligusticifolia (3)	Yerba de Chivato
Delphinium nudicaule (1, 2, 3)	Red Larkspur
Delphinium parryi (3)	Parry's Larkspur
Ranunculus californicus (1, 3)	California Buttercup
Thalictrum polycarpum (1)	Meadow Rue

RHAMNACEAE: Buckhorn Family

Ceanothus dentatus (1)	
Ceanothus griseus (1)	Carmel Ceanothus
Ceanothus integerrimus (1)	Deer Brush
Ceanothus oliganthus (1, 2, 3)	Hairy Ceanothus
Ceanothus papillosus (1, 3)	Warty-Leaved Ceanothus
Ceanothus sorediatus (1, 3)	Jimbrush
Ceanothus thrysiflorus (1)	Blue Brush, California Lilac
Rhamnus californicus (1, 2, 3)	Coffeeberry
Rhamnus crocea illicifolia (1, 2, 3)	Buckthorn, Redberry

ROSACEAE: Rose Family

Adenostoma fasciculatum (1, 2, 3)	Chamise, Greasewood
Cercocarpus montanus glaber (3)	California Mountain-Mahogany
Fragaria vesca ssp. californica (1)	Toyon
Holodiscus discolor (1, 3)	Creambush, Ocean Spray
Holodiscus dumosus glabrescens (2, 3)	
Potentilla glandulosa (3)	Sticky Cinquefoil
Rosa gymnocarpa (1, 3)	Wood Rose
Rubus leucodermis (3)	Western Raspberry
Rubus parviflorus velutinus (1, 3)	Thimbleberry
Rubus ursinus (1)	

RUBIACEAE: Madder Family

Galium angustifolium (1, 2, 3)	Narrow-Leaved Bedstraw
Galium aparine (1, 2, 3)	Goose Grass
Galium californicum (1)	California Bedstraw
Galium californicum flaccidum (1, 2, 3)	
Galium californicum luciense (1, 2, 3)	
Galium clementis (1, 2, 3)	Santa Lucia Bedstraw
Galium porrigens var. tenue (1)	
Galium triflorum (1)	

SALICACEAE: Willow Family

Salix sitchensis (1, 3)	Coulter Willow

SAXIFRAGACEAE: Saxifrage Family

Boykinia elata (1, 3)	Coast Boykinia, Brook Foam
Heuchera micrantha var. pacifica (1)	Crevice Heuchera
Lithophragma heterophyllum (1, 2, 3)	Hill Star
Ribes amarum (3)	Bitter Gooseberry
Ribes malvaceum (1)	Chaparral Currant
Ribes menziesii var. hystrix (1)	Porcupine Gooseberry
Ribes sanguineum var. glutinosum (1)	Red-Flowering Currant
Saxifraga californica (1, 3)	California Saxifrage
Whipplea modesta (1, 3)	Yerba de Selva

SCROPHULARIACEAE: Figwort Family

Antirrhinum multiflorum (3)	Sticky Snapdragon
Castilleja affinis (1, 3)	Indian Paint Brush
Castilleja foliolosa (1, 3)	Wooly Painted Cup
Castilleja latifolia (1)	Monterey Paint Brush
Castilleja martinii (1, 2, 3)	Martin's Paint Brush
Collinsia childii (1, 2, 3)	Child's Blue-Eyed Mary
Collinsia heterophylla (1, 3)	Chinese Houses
Cordylanthus rigidus (1, 2, 3)	Stiffly Branched Bird's Beak
Keckiella breviflora (1, 2, 3)	Gaping Penstemon
Keckiella corymbosa (1, 2, 3)	Redwood Penstemon
Mimulus aurantiacus (1)	Sticky Monkey Flower
Mimulus bifidus fasciculatus (1, 2, 3)	Santa Lucia Sticky Monkey Flower

Mimulus guttatus (1, 3)	Seep Spring Monkey Flower
Mimulus subsecundus (1, 2, 3)	One-Sided Monkey Flower
Orthocarpus purpuascens (3)	Common Owl's Clover
Penstemon maris densiflora (1, 3)	Indian Warrior
Penstemon centranthifolius (1, 2, 3)	Scarlet Bugler
Penstemon heterophyllus australis (1, 3)	Foothill Penstemon
Scrophularia californica (1, 3)	California Bee Plant

SOLANACEAE: Nightshade Family

Solanum douglasii (1)	Douglas's Nightshade
Solanum marginatum (1)	

VERBENACEAE: Vervain Family

Verbena lasiostachys (1)	California Vervain

VIOLACEAE: Violet Family

Viola purpurea mohavensis (3)	Pine Violet
Viola sempervirens (1)	Redwood Violet

Subdivision PTEROPSIDA
Class ANGIOSPERMAE
Subclass MONOCOTYLEDONES

AGAVACEAE: Agave Family

Yucca whipplei percursa (1, 2, 3)	Our Lord's Candle, Quixote Plant

CYPERACEAE: Sedge Family

Carex globosa (1, 2, 3)	Round-Fruited Sedge
Carex multicaulis (1, 2, 3)	Many-Stemmed Sedge

IRIDACEAE: Iris Family

Iris douglasiana (1, 3)	Douglas's Iris
Sisyrinchium bellum (1)	Blue-Eyed Grass

JUNCACEAE: Rush Family

Juncus effusus pacifica (3)	Common Rush

LILIACEAE: Lily Family

Allium burlewii (1, 2, 3)	Burlew's Onion
Calochortus albus (1, 2, 3)	Fairy Lantern, Globe Lily
Calorogalum pomeridianum var. divaricatum (1)	Soap Plant
Dichelostemma pulchellum var. pauciflora (1, 2, 3)	Blue Dicks, Wild Hyacinth
Disporum hookeri (1, 2, 3)	Fairy Bells
Fritillaria lanceolata (3)	Checker Lily
Smilacina racemosa (1, 3)	Western Solomon's Seal

Trillium chloropetalum var. giganteum (1)	Giant Trillium
Trillium ovatum (1)	Western Wake Robin
Triteleia ixioides (3)	Golden Brodiaea, Pretty Face
Zigadenus fremontii (1)	Star Lily

ORCHIDACEAE: Orchid Family

Epipactus gigantea (1, 3)	Stream Orchid, Helleborne
Piperia elegans (3)	Rein Orchid, Slender Habernaria

POACEAE: Grass Family

Agropyron parishii (3)	California Wheat Grass
Air caryophylla (1)	Silver Hairgrass
Avena barbata (1)	Slender Oat
Avena fatua (1, 3)	Wild Oat
Bromus diandrus (1, 2, 3)	Ripgut Grass
Bromus grandis (1, 2, 3)	Tall Brome Grass
Bromus hordeaceus (2, 3)	Soft Chess
Bromus rubens (1, 3)	Foxtail Chess, Red Brome
Bromus tectorum (1, 2, 3)	Downy Chess, Cheat Grass
Calamagrostis rubescens (1, 3)	Pine Grass
Cortaderia selloana (1)	Pampasgrass
Distichlis spicata var. stolonifera (1)	Seashore Saltgrass
Elymus glaucus (1, 2, 3)	Western Rye-Grass
Elymus triticoides (1)	Beardless Wild-Rye
Festuca californica (1, 3)	California Fescue
Festuca elmeri (2)	Elmer's Fescue
Hierochloe occidentalis (3)	Vanilla Grass
Melica harfordii (1, 2, 3)	Harford's Melica
Melica imperfecta (1, 2, 3)	Small-Flowered Melica
Poa howellii (1)	Howell Bluegrass
Poa scabrella (1, 2, 3)	Malpais Bluegrass
Polycarpon tetraphyllum (1)	
Sitanion jubatum (1, 2, 3)	Big Squirrel Tail
Stipa coronata (1, 2, 3)	Needle-Grass, Giant Stipa
Stipa pulchra (1)	Purple Needle-Grass
Vulpia bromoides (3)	Six-Weeks Fescue
Vulpia microstachys pauciflora (3)	Few-Flowered Fescue
Vulpia myuros hirsuta (1, 2, 3)	Foxtail Fescue

SPECIAL STATUS PLANTS OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA 1/

Abies bracteata	List 4
Arctostaphylos hooveri	List 4
Clarkia lewisii	List 4
Chorizanthe douglassii	List 4
Cryptantha rattanii	List 4
Galium californicum ssp. *luciense*	List 1
Galium clementis	List 4
Lupinus abramsii	List 3
Lupinus cervinus	List 4

Plants Found on Lands Adjacent to RNA in Habitat present in the RNA, and thus Suspected of Occurring in the RNA:

Delphinium hutchinsonii	List 1
Malacothahmnus palmeri var. *lucianus*	List 1

1/ List 1 = Rare and Endangered in California and Elsewhere List 3 = More Information Needed to Determine Rare Status List 4 = Plants of limited distribution whose susceptibility to threat appears low at this time

Lists 1-4 correspond to those given in the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, Special Publication No. 1 (3rd Edition), September 1984

PLANTS OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA
NOT FOUND ELSEWHERE OR ARE RARE OR UNCOMMON IN THE SOUTH COAST RANGES 1/

Asclepias californica ssp. greenei	RE
Cheilanthes covillei	UE
Cheilanthes gracillima	UE
Cheilanthes intertexta	UE
Carex multicaulis	NFE
Chimaphila menzeisii	NFE
Chrysothamnus nauseosus ssp. albicaulis	NFE
Cycladenia humilis var. venusta	NFE
Chrysothamnus nauseosus ssp. mohavensis	NFE
Eriogonum saxatile	RE
Holodiscus dumosus var. glabrescens	NFE
Pinus lambertiana	NFE
Allium burlewii	RE
Streptanthus tortuosus	RE
Pleuricospora fimbriolata	RE
Rubus leucodermis	RE

NFE = Disjunct: Not Found Elsewhere in the south Coast Ranges outside of the Santa Lucias

RE = Rare Elsewhere in the south Coast Ranges

UE = Uncommon Elsewhere in the south Coast Ranges

1/ This information was obtained from Griffin 1975 and 1976

HERPETOFAUNA OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA

1 = Found by Keeler-Wolf, 1977
2 = Suspected by Keeler-Wolf, 1977
3 = Found by Mulligan et al., in preparation for publication 4 = Suspected by Mulligan et al., in preparation for publication

An Asterisk (*) denotes the species has not been found in the RNA and is only suspected to occur there.

SALAMANDRIDAE (Newts)

Taricha torosa (1, 3)	California Newt

PLETHODONTIDAE (Lungless Salamanders)

Ensatina eschscholtzi (1, 3)	Ensatina
Batrachoseps pacificus (1, 3)	Pacific Slender Salamander
*Aneides lugubris (2, 4)	Arboreal Salamander

BUFONIDAE (True Toads)

Bufo boreas (1, 3)	Western Toad

HYLIDAE (Treefrogs and Relatives)

Hyla regilla (1, 3)	Pacific Treefrog

IGUANIDAE (Iguanids)

Scleroporus occidentalis (1, 3)	Western Fence Lizard
Sceloporus graciosus (1, 3)	Sagebrush Lizard
*Uta stansburiana (4)	Side-Blotched Lizard
Phrynosoma coronatum (3)	Coast Horned Lizard

SCINCIDAE (Skinks)

Eumeces skiltonianus (1, 3)	Western Skink

TEIIDAE (Whiptails and Relatives)

Cnemidophorus tigris (1, 3)	Western Whiptail

ANGUIDAE (Alligator Lizards and Relatives)

Cerrhonotus multicarinatus (1, 3)	Southern Alligator Lizard
Cerrhonotus coeruleus (1, 4)	Northern Alligator Lizard

BOIDAE (Boas)

*Charina bottae (2, 4)	Rubber Boa

COLUBRIDAE (Colubrids)

Diadophis punctatus (2, 3)	Ringneck Snake
Contia tenuis (3)	Sharp-Tailed Snake
Coluber constrictor (1, 4)	Western Yellow-Bellied Racer
Masticophis lateralis (1, 3)	Striped Racer
Pituophis melanoleucus (1, 3)	Gopher Snake
*Lampropeltis getulis (4)	Common Kingsnake
Lampropeltis zonata (1, 3)	Mountain Kingsnake
Thamnophis elegans (3)	Western Terrestrial Garter Snake
*Thamnophis couchi (2)	Western Aquatic Garter Snake
Hypsiglen torquata (3)	Night Snake

VIPERIDAE (Vipers)

Crotalus viridis	Western Rattlesnake

SPECIAL STATUS HERPETOFAUNA OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA

There are no special status herpetofauna known in the RNA; however, the population of sagebrush lizard (Sceloporous graciosus) found on Cone Peak and Twin Peak represent a significant range extension. This species is the most common lizard on Cone Peak (Mulligan et al., in preparation). The closest previously reported population is 30 miles to the northwest (Balgooyen 1970).

A night snake (Hypsiglena torquata) was found atop Lion Peak (Mulligan et al., in preparation), which is located less than one airline mile west of the RNA along the same ridge where Cone Peak and Twin Peak are found. This is the first time that the night snake has been found so close to the coast north of Point Conception, representing an important range extension of this species.

BIRDS OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA

1 = Observed by Keeler-Wolf, 1977
2 = Observed by Mulligan et al., in preparation for publication

CATHARTIIDAE (American Vultures)

Cathartes aura (1, 2)	Turkey Vulture
Gymnogyps californianus (1)	California Condor

ACCIPITRIDAE (Hawks and Harriers)

Circus cyaneus (2)	Northern Harrier
Accipiter striatus (1, 2)	Sharp-Shinned Hawk
Accipiter cooperii (1, 2)	Cooper's Hawk
Buteo jamaicensis (1, 2)	Red-Tailed Hawk

FALCONIDAE (Caracaras and Falcons)

Falco sparverius (1, 2)	American Kestrel
Falco peregrinus (2)	Peregrine Falcon

PHASIANIDAE (Quails, Pheasants, and Relatives

Calipepla californica (1)	California Quail
Oreortyx pictus (1, 2)	Mountain Quail

COLUMBIDAE (Pigeons and Doves)

Columba fasciata (1, 2)	Band-Tailed Pigeon
Zenaida macroura (2)	Mourning Dove

STRIGIDAE (Typical Owls)

Otus flammeolus (2)	Flammulated Owl
Otus kennicottii (1, 2)	Western Screech-Owl
Bubo virginianus (1, 2)	Great Horned Owl
Glaucidium gnoma (1, 2)	Northern Pygmy-Owl
Strix occidentalis (1, 2)	Spotted Owl

APPODIDAE (Swifts)

Chaetura vauxi (1, 2)	Vaux's Swift
Aeronautes saxatalis (1, 2)	White-Throated Swift

TROCHILIDAE (Hummingbirds)

Calypte anna (1, 2)	Anna's Hummingbird
Selasphorous sasin (1, 2)	Allen's Hummngbird

PICIDAE (Woodpeckers and Wrynecks)

Melanerpes formicivorus (1, 2)	Acorn Woodpecker
Sphyrapicus thyroideus (2)	Williamson's Sapsucker
Picoides nuttallii (1, 2)	Nuttall's Woodpecker
Picoides villosus (1, 2)	Hairy Woodpecker
Colaptes auratus (1, 2)	Northern Flicker

TYRANNIDAE (Tryant Flycatchers)

Contopus borealis (1, 2)	Olive-Sided Flycatcher
Contopus sordidulus (1, 2)	Western Wood-Oeewee
Empidonax difficilis (1, 2)	Western Flycatcher
Sayornis nigricans (1)	Black Phoebe
Sayornis saya (1)	Say's Phoebe
Myiarchus cinerascnens (1, 2)	Ash-Throated Flycatcher

HIRUNDINIDAE (Swallows)

Tachycineta thalassina (2)	Violet-Green Swallow

CORVIDAE (Jays, Magpies, and Crows)

Cyanocitta stelleri (1, 2)	Steller's Jay
Aphelocoma coerulescens (1, 2)	Scrub Jay
Corvus brachyrhynchos (1, 2)	Common Crow
Corvus corax (1)	Common Raven

PARIDAE (Titmice)

Parus gambeli (1)	Mountain Chickadee
Parus rufescens (1, 2)	Chestnut-Backed Chickadee
Parus inornatus (1, 2)	Plain Titmouse

AEGITHALIDAE (Bushtit)

Psaltriparus mimimus (1, 2)	Bushtit

CINCLIDAE (Dippers)

Cinclus mexicanus (1, 2)	Dipper

SITTIDAE (Nuthatches)

Sitta canadensis (1, 2)	Red-Breasted Nuthatch
Sitta carolinensis (2)	White-Breasted Nuthatch
Sitta pygmaea (2)	Pygmy Nuthatch

CERTHIDAE (Creepers)

Certhie americana (1, 2)	Brown Creeper

TROGLODYTIDAE (Wrens)

Salpinctes obsoletus (1, 2)	Rock Wren
Catherpes mexicanus (1, 2)	Canyon Wren
Thryomanes bewickii (1, 2)	Bewick's Wren
Troglodytes aedon (1)	House Wren
Troglodytes troglodytes (1, 2)	Winter Wren

MIMIDAE Mockingbirds and Thrashers)

Toxostoma redivivum (1, 2)	California Thrasher

MUSCICAPIDAE (Gnatcathers, Kinglets, Thrushes, Bluebirds, and Wrentits)

Regulus calendula (1, 2)	Ruby-Crowned Kinglet
Regulus satrapa (1)	Golden-Crowned Kinglet
Polioptila caerulea (1, 2)	Blue-Gray Gnatcatcher
Myadestes townsendi (2)	Townsend's Solitaire
Sialia mexicana (1, 2)	Western Bluebird
Catharus guttatus (1, 2)	Hermit Thrush
Ixoreus naevius (1, 2)	Varied Thrush
Turdus migratorius (1, 2)	American Robin
Chamaea fasciata (1, 2)	Wrentit

VIREONIDAE (Typical Vireos)

Vireo solitarius (1, 2)	Solitary Vireo
Vireo huttoni (1, 2)	Hutton's Vireo
Vireo gilvus (1, 2)	Warbling Vireo

EMBERIZIDAE (Wood Warblers, Sparrows, Blackbirds, and Relatives)

Vermivora celata (1, 2)	Orange-Crowned Warbler
Dendroica coronata (1, 2)	Yellow-Rumped Warbler
Dendroica nigrescens (1, 2)	Black-Throated Gray Warbler
Dendroica townsendi (1, 2)	Townsend's Warbler
Wilsonia pusilla (1, 2)	Wilson's Warbler
Piranga ludoviciana (1, 2)	Western Tanager
Pheucticus melanocephalus (1, 2)	Black-Headed Grosbeak
Pipilo erythrophthalmus (1, 2)	Rufous-Sided Towhee
Pipilo fuscus (1)	Brown Towhee
Aimophila ruficeps (1, 2)	Rufous-Crowned Sparrow
Spizella passerina (1)	Chipping Sparrow
Passerella iliaca (2)	Fox Sparrow
Zonotrichia atricapilla (1, 2)	Golden-Crowned Sparrow
Zonotrichia leucophrys (1, 2)	White-Crowned Sparrow
Junco hyemalis (1, 2)	Dark-Eyed Junco
Sturnella neglecta (1)	Western Meadowlark

FRINGILLIDAE (Finches)

Carpodacus purpureus (1, 2)	Purple Finch
Carpodacus mexicanus (1)	House Finch
Carduelis pinus (1, 2)	Pine Siskin
Carduelis psaltria (1, 2)	Lesser Goldfinch
Carduelis tristis (2)	American Goldfinch

SPECIAL STATUS BIRDS OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA

Circus cyaneus	BL	Northern Harrier
Falco peregrinus	FE, CE, CP	Peregrine Falcon
Gymnogyps californianus	FE, CE, CP	California Condor
Myadestes townsendi	R	Townsend's Solitaire
Picoides villosus	BL	Hairy Woodpecker
Sialis mexicana	BL	Western Bluebird
Sphyrapicus thyroideus	R	Williamson's Sapsucker
Strix occidentalis	BL, FS	Spotted Owl
Thryomanes bewickii	BL	Bewick's Wren
Vireo gilvus	R	Warbling Vireo

SUSPECTED SPECIAL STATUS OR DISJUNCT BIRDS
OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA 1/2/

Golden eagles	FS, CP
Purple Martin	Blue LIST
Road Runner	Range Extension
Mountain Chickadee	Montane Disjunct

FE = Designated Endangered by the Federal Government
FS = Forest Service Sensitive
CE = Designated Endangered by the California Dept. of Fish and Game CP = Fully Protected Species in California
R = Disjunct: Rare Outside of the Sierra Nevada
BL = Blue List (Tate and Tate, 1982)

1/ Information for this table obtained from Mulligan et al. (In preparation). "Terrestrial vertebrates of the Cone Peak-South Fork Devil's Canyon study area." Santa Cruz: Environmental Field Program, UC Santa Cruz.

2/ These species were seen by Carolyn Zeitler, a Forest Service employee working for several years as the fire lookout at Cone Peak.

MONTANE DISJUNCT BIRDS CONFIRMED OR SUSPECTED OF BREEDING IN THE CONE PEAK GRADIENT RESEARCH NATURAL AREA 1/

Sharp-Shinned Hawk	Suspected
Mountain Quail	Confirmed
Band-Tailed Pigeon	Suspected
Flammulated Owl	Suspected
Northern Saw-Whet Owl	Suspected
Hairy Woodpecker	Confirmed
Olive-Sided Flycatcher	Confirmed
Western Wood-Peewee	Confirmed
Violet-Green Swallow	Confirmed
Red-Breasted Nuthatch	Suspected
Solitary Vireo	Confirmed
Yellow-Rumped Warbler	Confirmed

1/ Information for this table obtained from Mulligan et al. (In preparation). "Terrestrial vertebrates of the Cone Peak-South Fork Devil's Canyon study area." Santa Cruz: Environmental Field Program, UC Santa Cruz.

MAMMALS OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA

1 = Found by Keeler-Wolf, 1977
2 = Suspected by Keeler-Wolf, 1977
3 = Found by Mulligan et al., in preparation for publication

An Asterisk (*) denotes the species potentially occurs in the RNA but there is no recorded observation.

SORICIDAE (Shrews)

Sorex trowbridgii (1, 3)	Trowbridge's Shrew
*Sorex ornatus (2)	Ornate Shrew

TALPIDAE (Moles)

Scapanus latimanus (1, 3)	Broad-footed Mole

VESPERTILIONIDAE (Vespertilionid Bats)

*Antrozous pallidus (2)	Pallid Bat
*Eptesicus fuscus (2)	Big Brown Bat
*Lasionycteris noctivagans (2)	Silver-Haired Bat
*Lasiurus borealis (2)	Red Bat
Lasiurus cinereus (1)	Hoary Bat
*Myotis lucifugus (2)	Little Brown Myotis
*Myotis evotis (2)	Long-Eared Myotis
*Myotis volans (2)	Long-Legged Myotis
Myotis californicus (1)	California Myotis
*Myotis yumanensis (2)	Yuma Myotis
*Myotis thysanodes (2)	Fringed Myotis
*Myotis leibii (2)	Small-Footed Bat
Pipistrellus hesperus (1)	Western Pipistrelle
*Plecotus townsendii (2)	Townsend's Big-Eared Bat

MOLOSSIDAE (Free-Tailed Bats)

*Tadarida brasiliensis (2)	Brazilian Free-Tailed Bat

LEPORIDAE (Rabbits and Hares)

Sylvilagus bachmani (1, 3)	Brush Rabbit
*Sylvilagus audubonii (2)	Desert Cottontail
Lepus californicus (1)	Black-Tailed Hare

SCIURIDAE (Squirrels, Chipmunks, and Marmots)

Eutamias merriami (1, 3)	Merriam Chipmunk
Sciurus griseus (1, 3)	Western Gray Squirrel
Spermophilus beecheyi (1)	California Ground Squirrel

GEOMYIDAE (Pocket Gophers)

Thomomys bottae (1, 3)	Botta's Pocket Gopher

HETEROMYIDAE (Pocket Mice and Kangaroo Rats)

*Dipodomys venustus (2)	Narrow-Faced Kangaroo Rat
Perognathus californicus (3)	California Pocket Mouse

CRICETIDAE (Deer Mice, Voles, and Relatives)

Peromyscus boylei (2, 3)	Brush Mouse
Peromyscus californicus (2, 3)	California Mouse
Peromyscus maniculatus (2, 3)	Deer Mouse
Peromyscus truei (2, 3)	Pinyon Mouse
Neotoma fuscipes (1, 3)	Dusky-Footed Woodrat
Neotoma lepida (3)	Desert Woodrat
Microtus californicus (1)	California Vole

CANDIDAE (Foxes, Wolves, and Relatives)

Urocyon cinerceoargenteus (1, 3)	Gray Fox
Canis latrans (1, 3)	Coyote

PROCYONIDAE (Raccoons and Relatives)

Procycon lotor (1, 3)	Raccoon
Bassariscus astutus (1, 3)	Ringtail

MUSTELIDAE (Weasels, Badgers, and Relatives)

*Mustela frenata (2)	Long-Tailed Weasel
*Taxidea taxus (2)	Badger
*Spilogale gracilis (2)	Western Spotted Skunk
Memphitis memphitis (2, 3)	Striped Skunk

FELIDAE (Cats)

Felis concolor (1, 3)	Mountain Lion
Lynx rufus (2, 3)	Bobcat

SUIDAE (Pigs)

Sus scrofa (3)	Wild Pig

CERVIDAE (Deer, Elk, and Relatives)

Odocoileus hemionus (1, 3)	Mule Deer

SPECIAL STATUS MAMMALS OF THE CONE PEAK GRADIENT RESEARCH NATURAL AREA

The ringtail (Bassariscus astutus) is the only special status mammal that positively occurs in the RNA. It is designated at a fully protected species in California. Mountain lion (Felix concolor) tracks and scat are frequently observed at the upper elevations of the RNA.

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FIGURES

1. Location of the Vegetation Profile Transect
2. Vegetation Profile of the Cone Peak Gradient RNA
3. Soils Map

MAPS

1. Project Vicinity Map
2. Location Map
3. Boundary and Land Ownership Map
4. Access Road Map
5. Vegetation Type Map
6. Photographs of the Area

FIGURE 1

Vegetation Profile Line Location Map, Cone Peak Gradient Research Natural Area

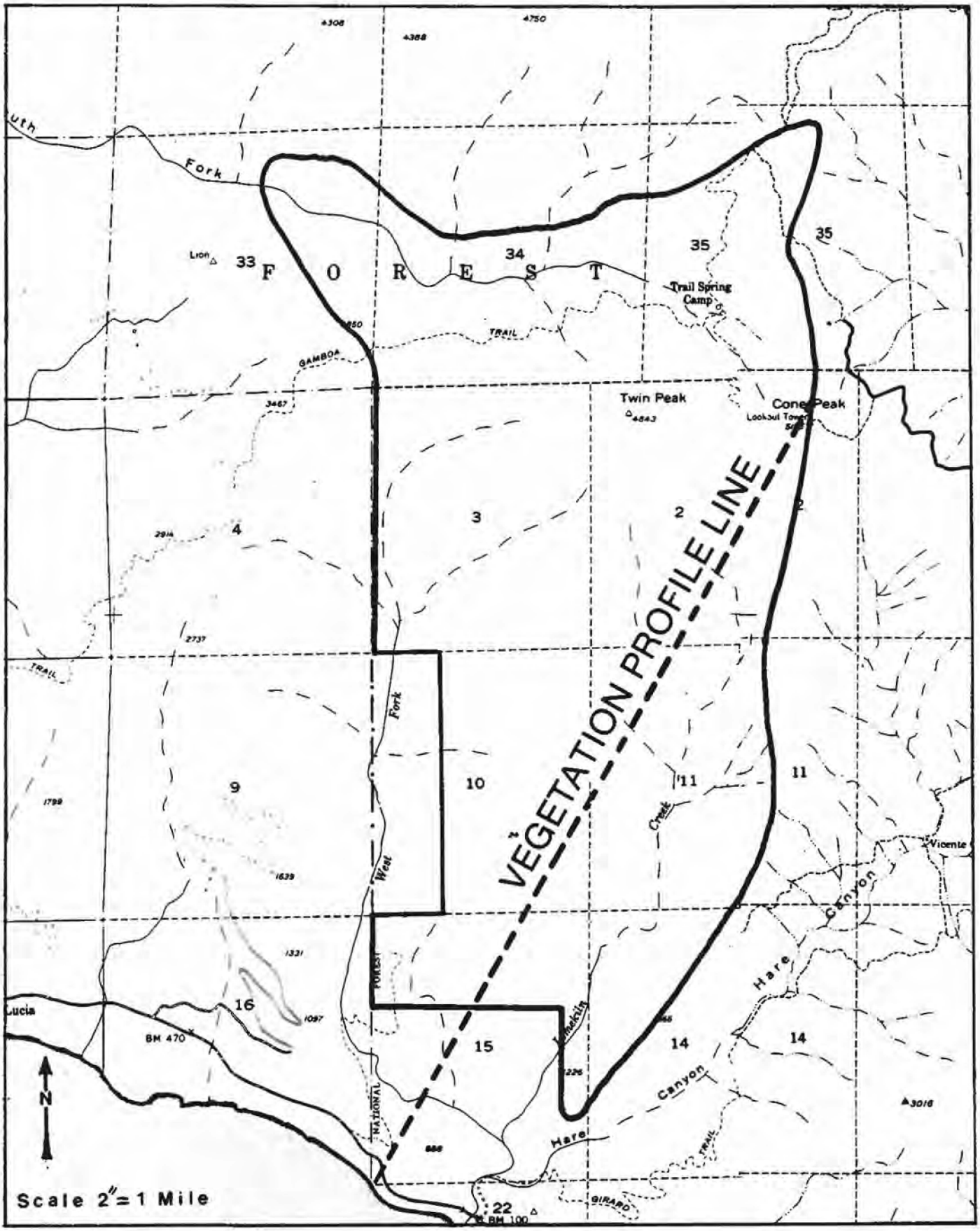
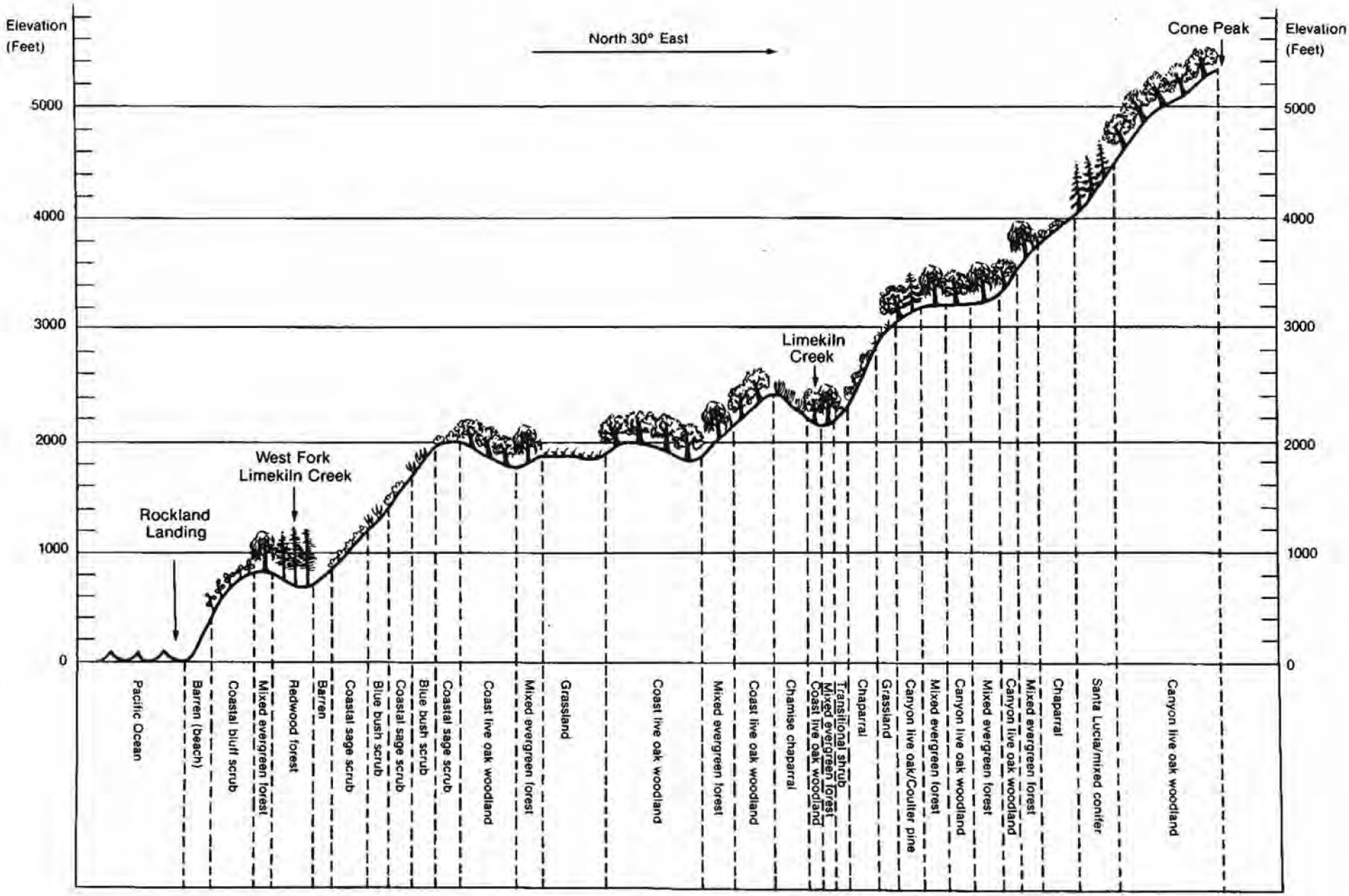


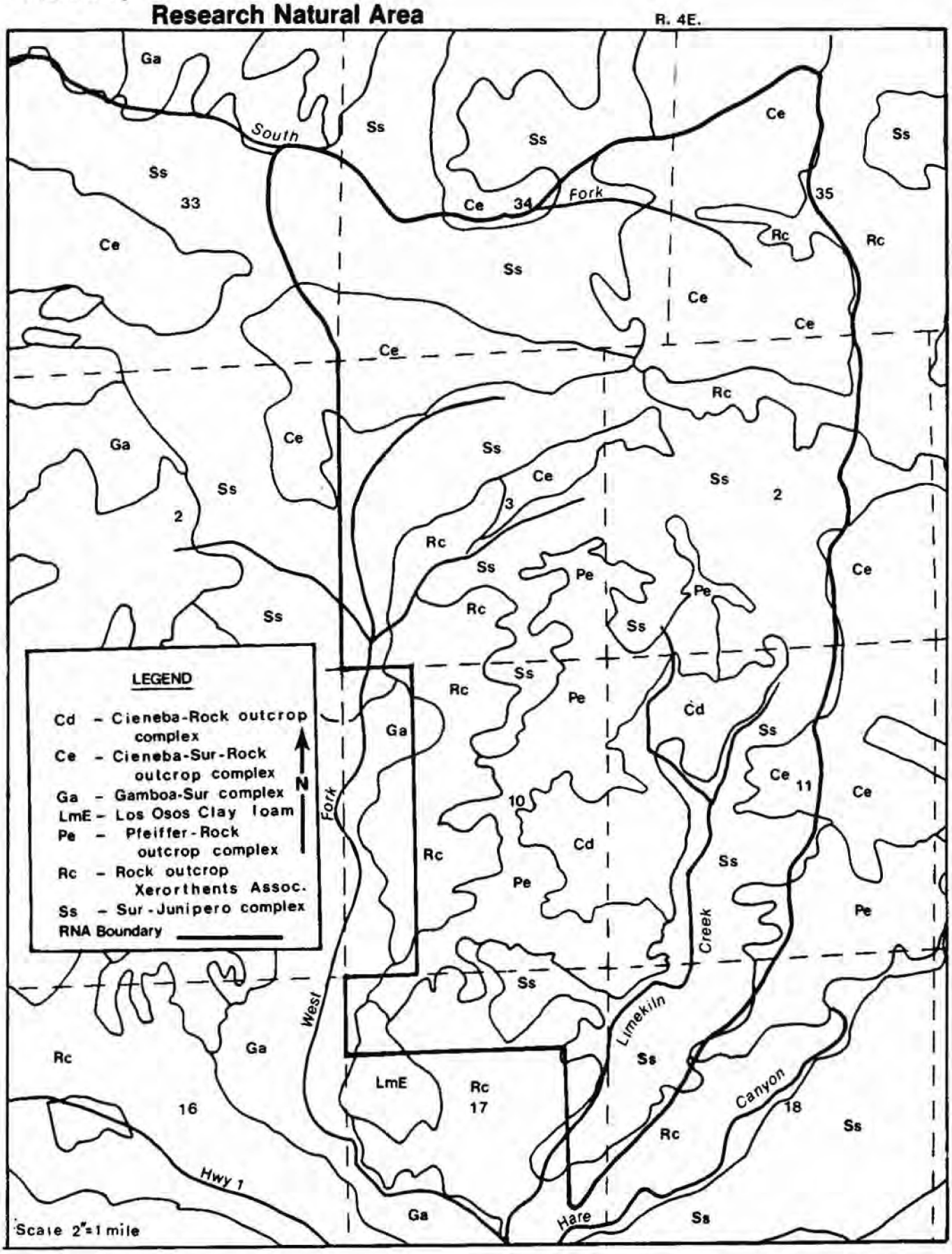
FIGURE 2



Vegetation Profile of Cone Peak Gradient Research Natural Area

FIGURE 3

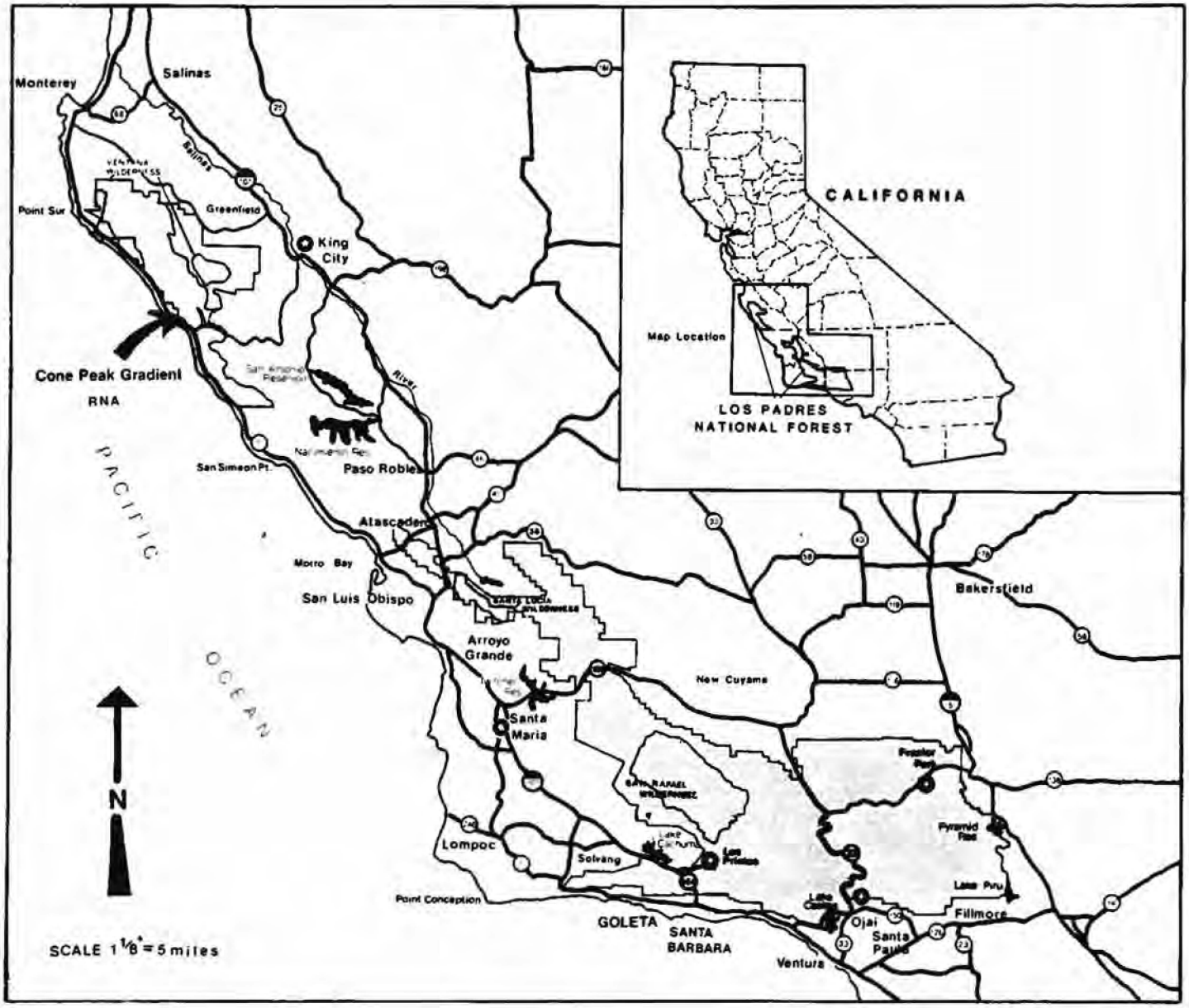
Soils Map - Cone Peak Gradient Research Natural Area



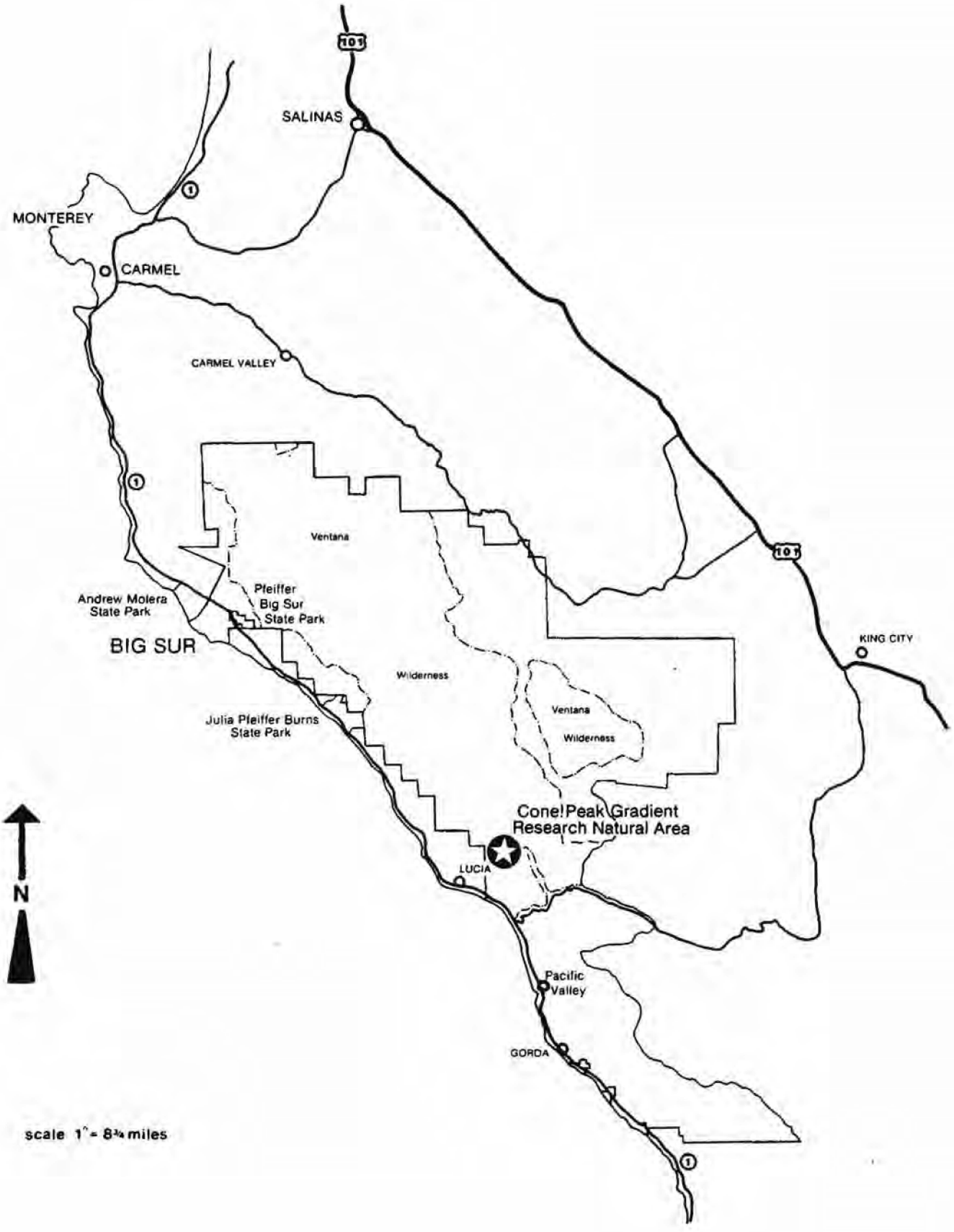
MAP 1

Project Vicinity Map

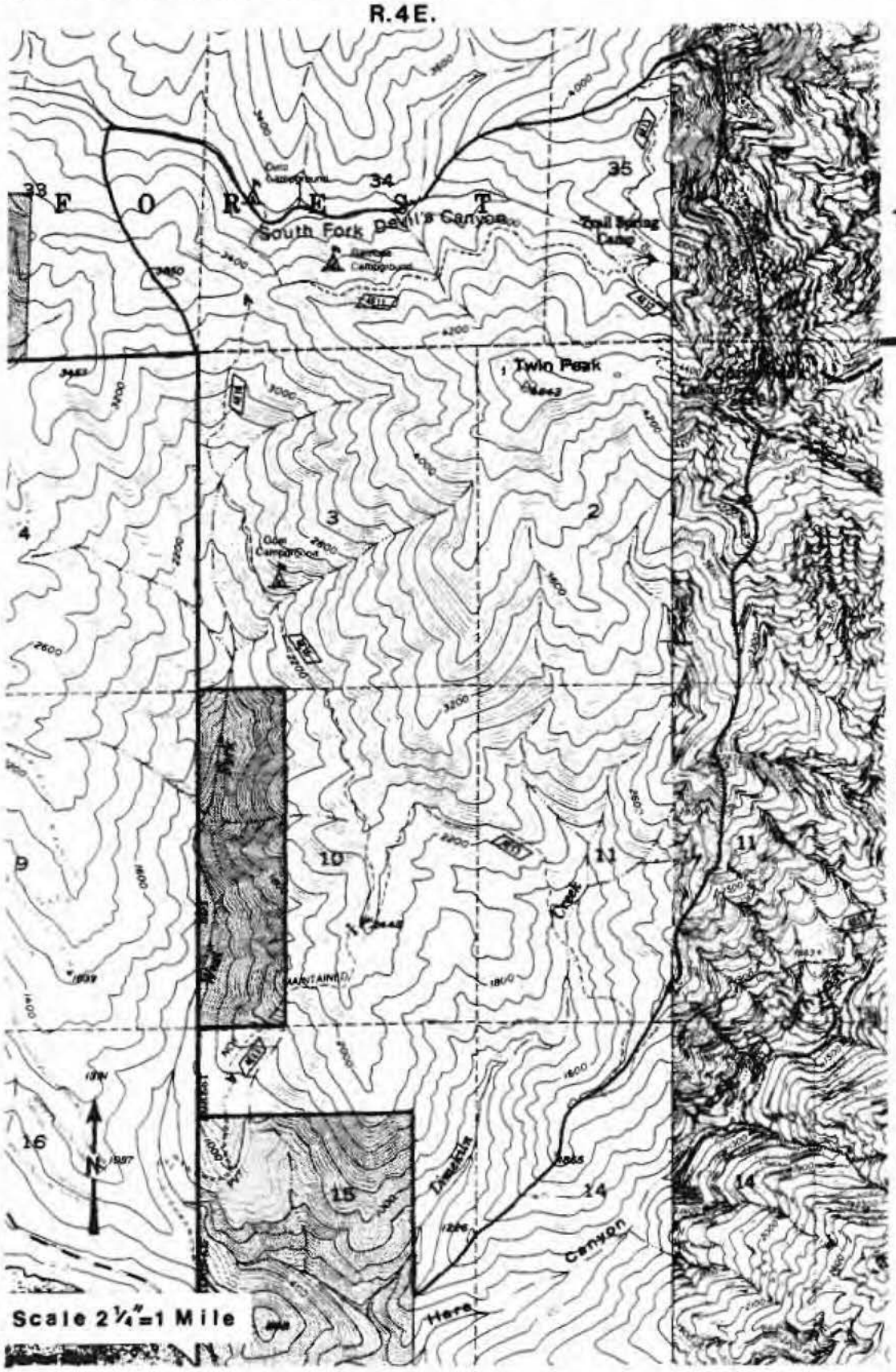
Cone Peak Gradient Research Natural Area



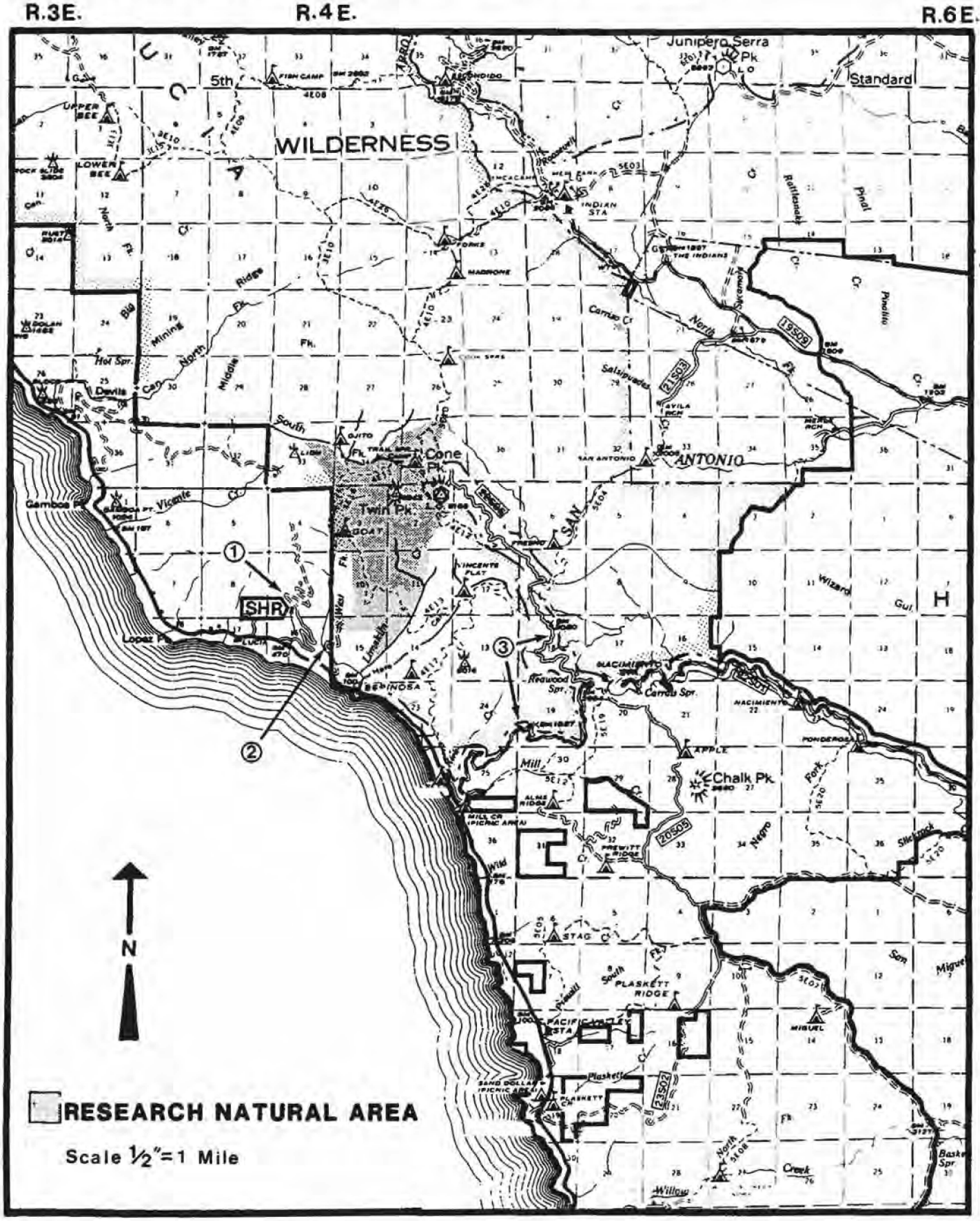
Location Map Cone Peak Gradient Research Natural Area

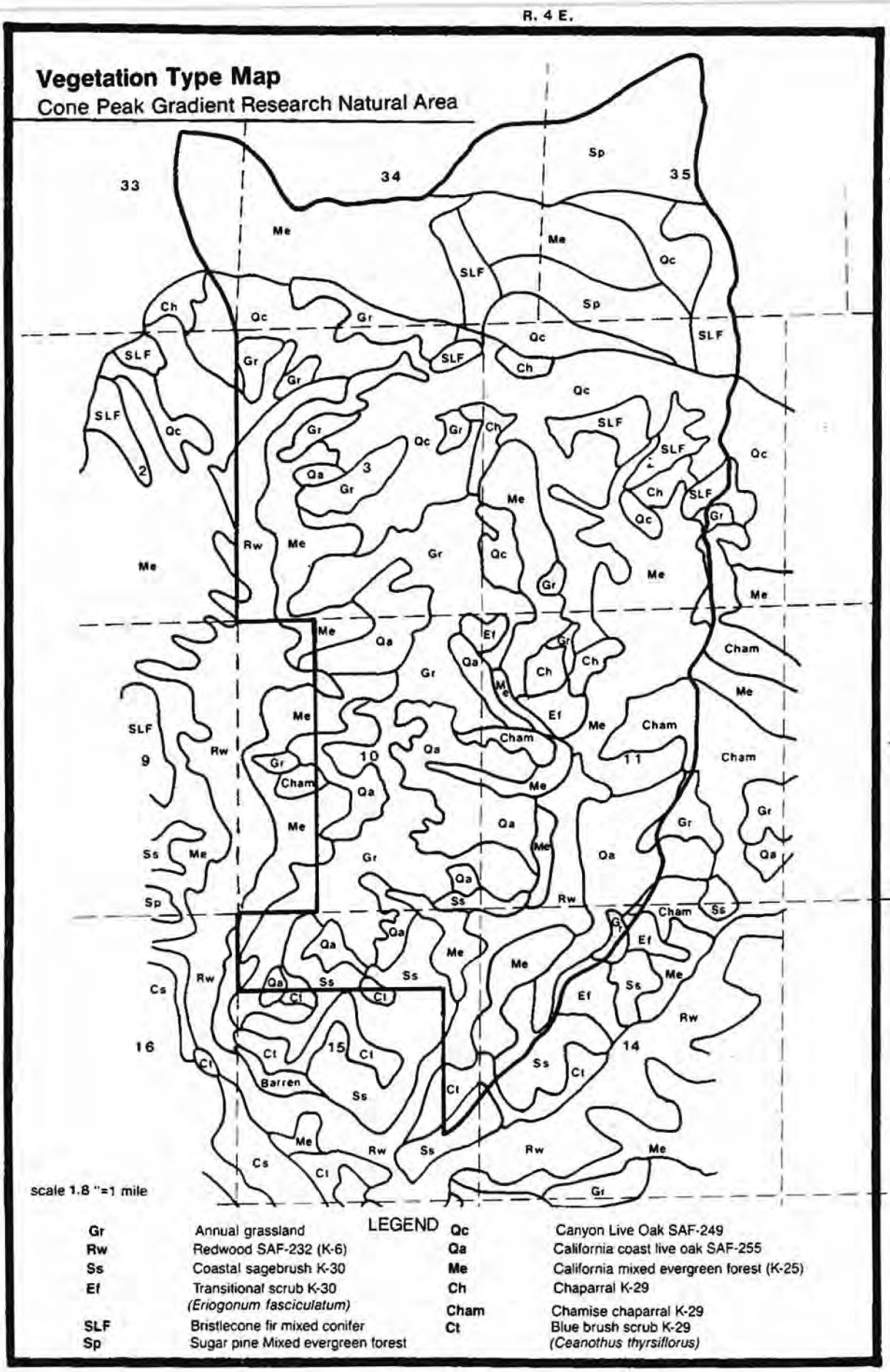


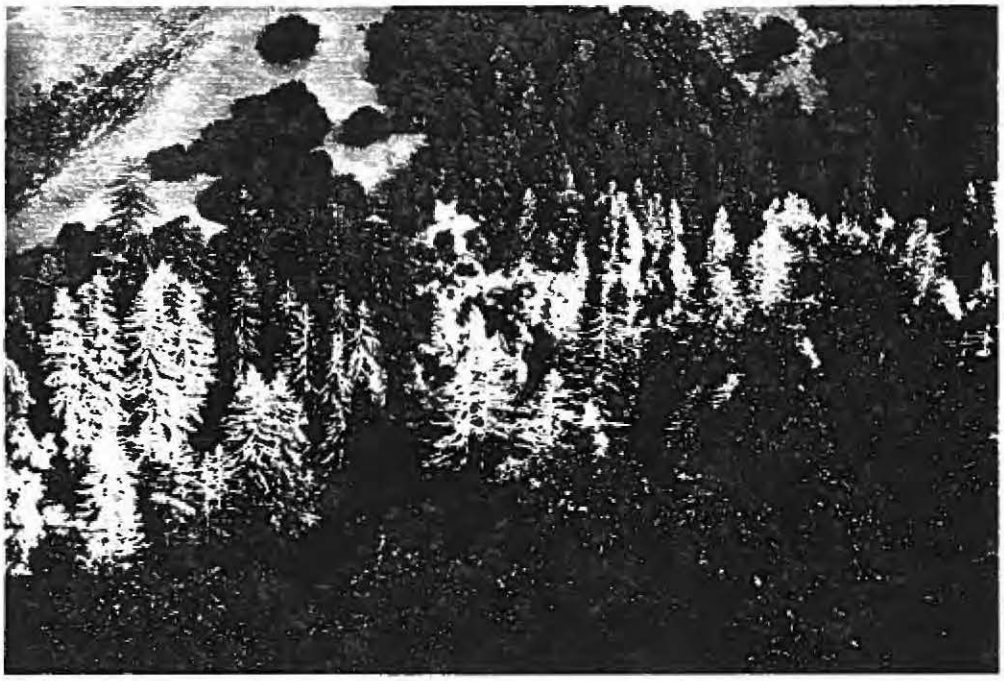
Boundary and Land Ownership Map Cone Peak Gradient Research Natural Area



Access Road Map, Cone Peak Gradient Research Natural Area

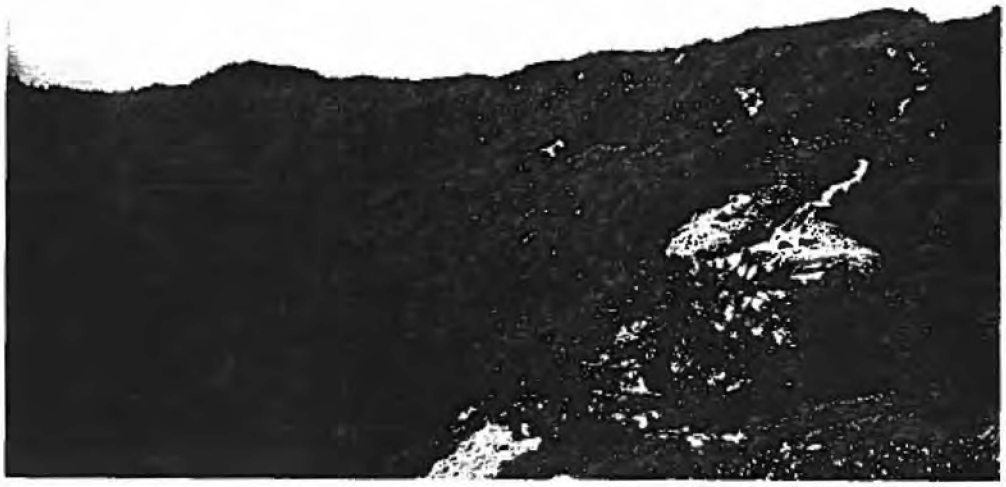



R. 4 E.
Vegetation Type Map
Cone Peak Gradient Research Natural Area
T. 21 S.
T. 22 S.
33
34
35
scale 1.8 "=1 mile
LEGEND
Gr Annual grassland
Rw Redwood SAF-232 (K-6)
Ss Coastal sagebrush K-30
Ef Transitional scrub K-30 (Eriogonum fasciculatum)
SLF Bristlecone fir mixed conifer
Sp Sugar pine Mixed evergreen forest
Qc Canyon Live Oak SAF-249
Qa California coast live oak SAF-255
Me California mixed evergreen forest (K-25)
Ch Chaparral K-29
Cham Chamise chaparral K-29
Ct Blue brush scrub K-29 (Ceanothus thyrsiflorus)

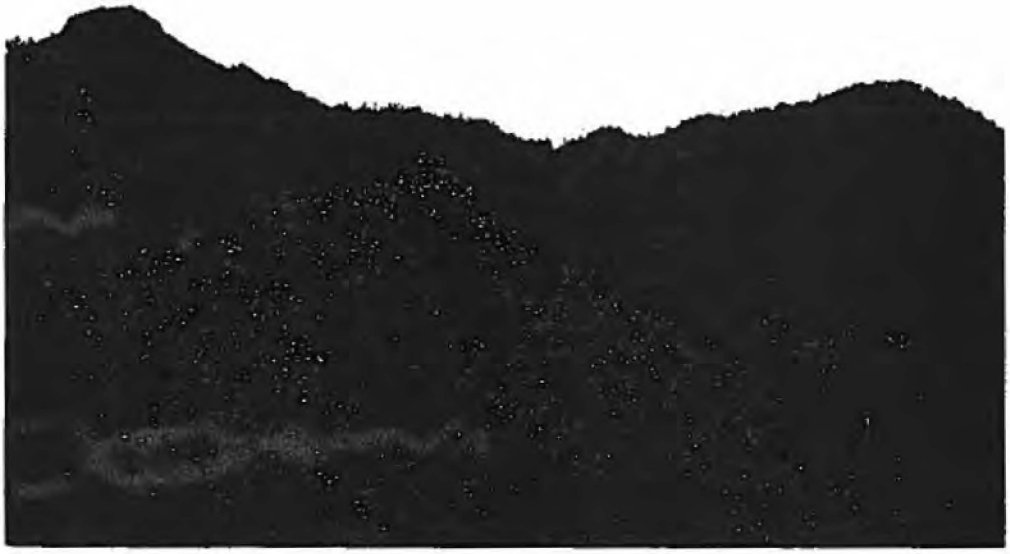


View of coast redwood in the upper portion of Limekiln Creek. Taken from trail 4E13 descending from the ridge that separates Limekiln creek drainage from Hare Canyon.

Sugar pine with an understory of canyon live oak in the nearground in the upper reaches of the South Fork of Devil's Canyon. Taken on trail 4E12 near Cone Peak.



View into the upper reaches of the South Fork of Devil's Canyon. Taken from the trail 4E12 to Trail Springs Camp at Cone Peak.



View of Twin Peak from trail 4E12 at Cone peak.